Number 6
Volume XLVI

MARCH, 1914

$2.00 per year
$3.00 with Directory

TEXTILE
WORLD RECORD

SPECIAL FEATURES

Faults in Wool
Combing
"Pure Textiles"
Legislation
Grading and Marketing
Cotton
Japanese Knit Goods
Industry
Marketing
Wool Goods

F. HERRICK

LORD & NAGLE COMPANY, BOSTON, MASS.

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The TEXTILE-FINISHING MACHINERY CO.

Howard Building, Providence, R. I.

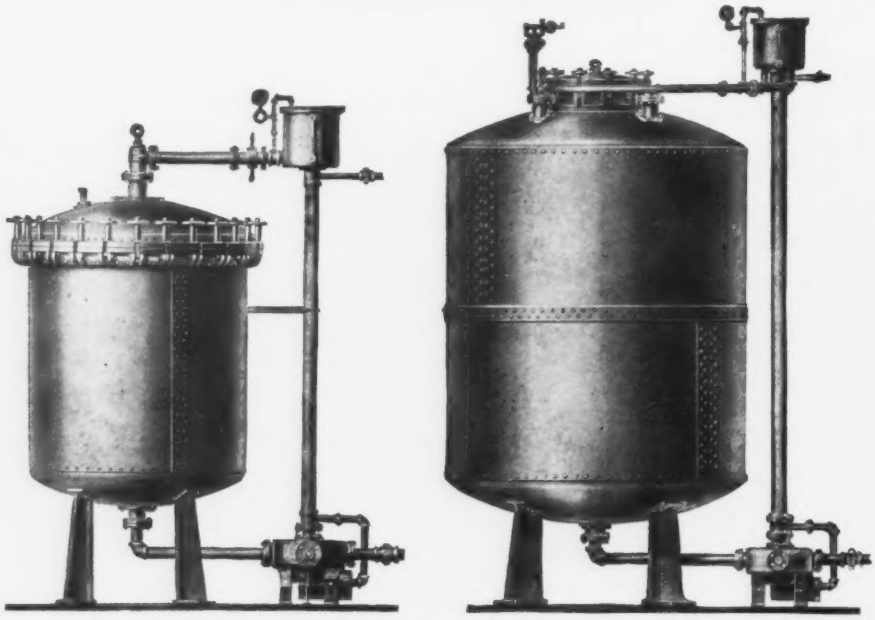
BUILDERS OF

Sleaching, Mercerizing, Dyeing, Drying, Printing and Finishing Machinery

FOR

TEXTILE FABRICS AND WARPS

Plans and Estimates for Complete Plants



Kiers Fitted With Rusden Circulator and Super heater

The Rusden system is simple, effective and fool proof. It leaves the inside of the kier free for the goods, furnishes a better and more uniform circulation, with the use of less steam than any other system

Pressure and Open Boil Kiers of all kinds

FOR

Woven and Knit Goods, Yarn and Raw Stock

H. W. BUTTERWORTH & SONS CO.

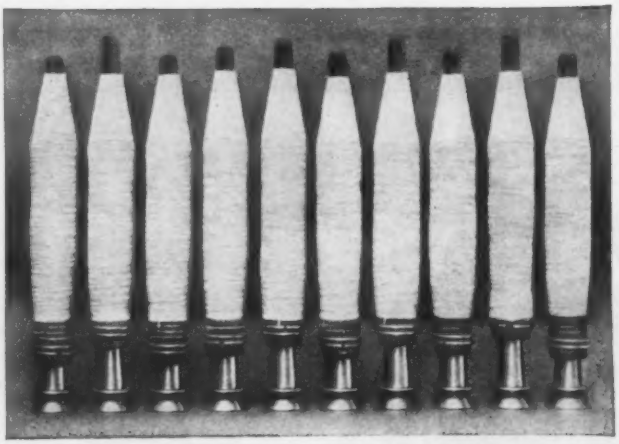
PHILADELPHIA, PA.

Providence Office, Room 417 Industrial Trust Bldg.

Five-Roll
Callender

Bleaching, Dyeing, Drying and Finishing Machinery

for Silk, Cotton and Worsted Fabrics.



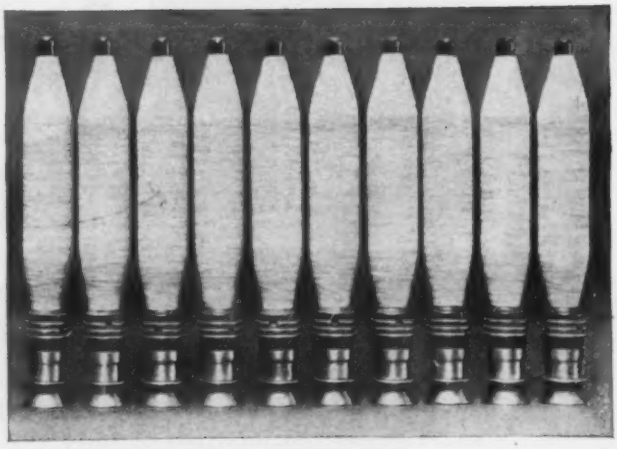
WHY

have the bobbins on your frames vary in height,

WHEN

by using Rabbeth Patent Centrifugal Clutch Spindles they would Stand at one level, and carry at least ten per cent. more Yarn

?



DRAPER COMPANY

HOPEDALE MASS.

THE BEST

NORTHROP LOOM BOBBINS

AND

SHUTTLES

ARE MADE BY

Northrop Loom Manufacturers

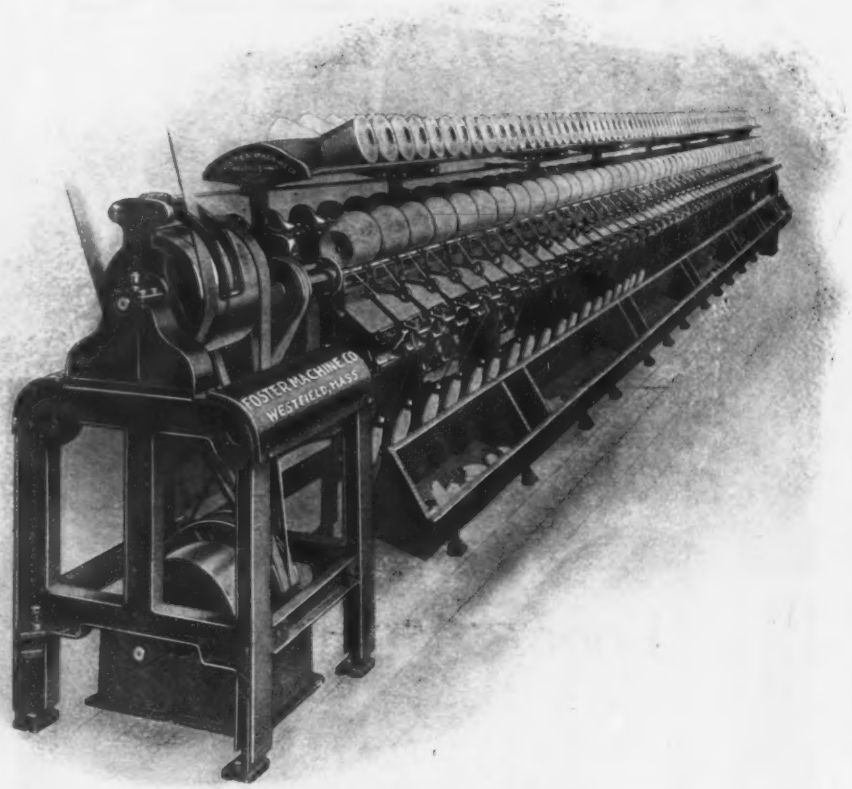
Look for our name on your Shuttles and Bobbins

DRAPER COMPANY

Hopedale Mass.

J. D. CLOUDMAN Southern Agent 40 So. Forsyth St. Atlanta, Ga.

The Foster Cone Winder



The cone package has attained its present favor through the extension of the use of the Foster Cone Winder.

Foster finishing has eliminated cobwebbed cones, ribbon wind chafing, loose ends and guide rubbed cones.

75 per cent of all the knitting yarns produced in the United States are wound on this machine.

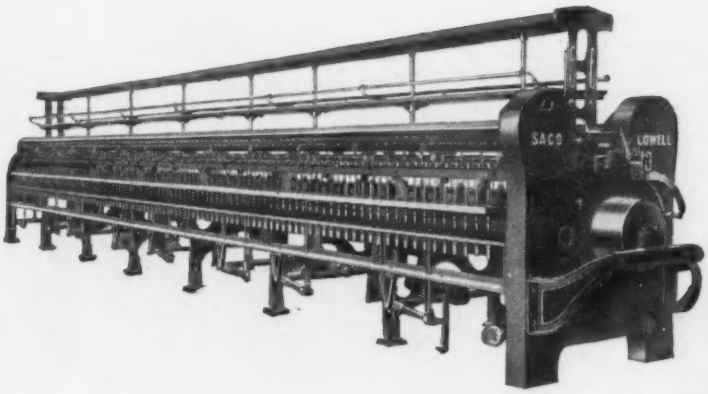
Foster Machine Company

Westfield, Mass.

John Hill, *Southern Agent*, 3rd National Bank Building, Atlanta, Ga.

Saco-Lowell Shops

TEXTILE MACHINERY



Shops—
Lowell, Mass.
Biddeford, Maine
Newton Upper Falls, Mass.

Executive Offices—
77 Franklin Street
Boston, Mass.

Southern Agent, ROGERS W. DAVIS,
Charlotte, N. C.

COMPLETE COTTON MILL EQUIPMENT
Including:
Pickers
Cards
Drawing
Evener Drawing
Roving
Spinning
Twisters
Slashers
Spoolers
Reels
Winders
Warpers
Looms

WASTE RECLAIMING MACHINERY

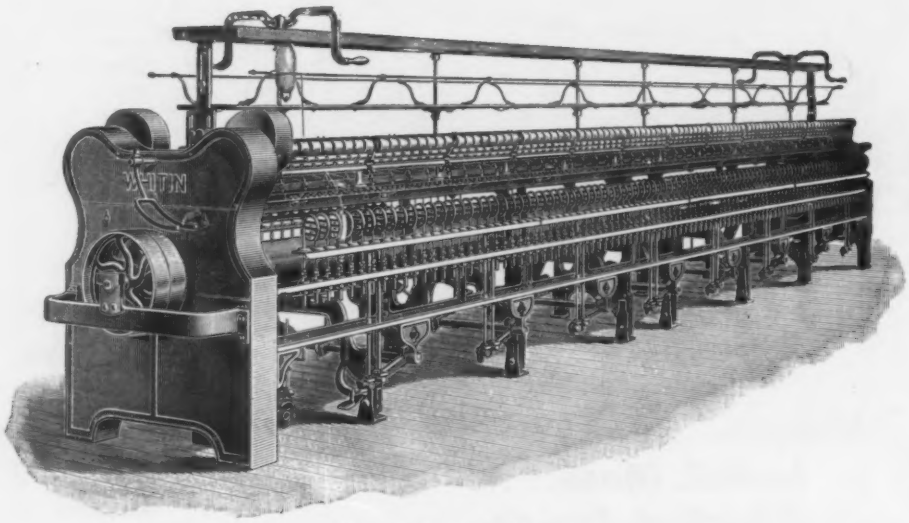
WORSTED MACHINERY
Including:
Revolving Creels,
Gill Boxes
Drawing Frames,
Reducing and Roving Frames,
Cap Ring and Flyer Spinning and Twisting Frames
Jack Spoolers

The Whitin Machine Works

Whitinsville, Mass.

BUILDERS OF

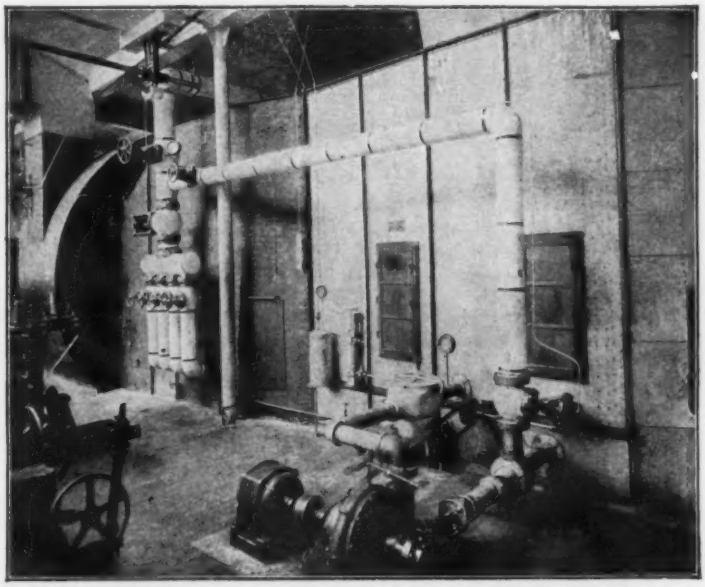
Cotton Mill Machinery



Ring Spinning Frame

CARDS	SPOOLERS
COMBERS	TWISTERS
DRAWING FRAMES	REELS
ROVING FRAMES	LONG CHAIN QUILLERS
SPINNING FRAMES	LOOMS AND DOBBIES

Southern Agent: STUART W. CRAMER, Charlotte, N. C.



"CARRIER EQUIPPED"

Conveys a world of meaning. The manufacturer who can so speak of his mill is at once stamped as the progressive-aggressive type. The class of American textile manufacturer which is here to stay. His known ability to produce a maximum output every working day in the year at a minimum cost of production is an assurance of permanency under all conditions.

See Our Exhibit——————Textile Exhibition

Carrier Air Conditioning Co.

Of America

No. 39 Cortlandt Street, New York City

NEW ENGLAND
E. T. Lyle, 176 Federal St.
Boston, Mass.

CHICAGO
Ft. Dearborn Bldg.
Clark and Monroe Sts.

PHILADELPHIA
734 Real Estate Trust Bldg.

BUFFALO, 490 Broadway

LEIGH & BUTLER

SUCCESSORS TO

EVAN ARTHUR LEIGH

232 Summer Street opposite the South Station), Boston, Mass.

SOLE AGENTS

IN THE UNITED STATES AND CANADA FOR

Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

Cotton, Woolen & Worsted Machinery

Platt's Patent Opening and Picking Machinery.
Platt's Cotton Comber—will comb from 7-8" stock to Sea Islands.
Platt's Special Machinery for Making Cotton Wastes into Yarns.
Platt's Special Machinery for Making French Worsted Yarns.
Platt's Woolen and Worsted Carding Engines, Special Designs.
Platt's Cotton, Cotton Waste, Woolen and Worsted Mules.

MATHER & PLATT, LTD.

Dyeing and Finishing Machinery

Archbutt-Deeley System for purifying and softening water.

JOSEPH SYKES BROS. Card Clothing for Cotton.
JAMES CRITCHLEY & SONS. Card Clothing for Woolen and Worsted.
WILSON BROS. BOBBIN CO. Bobbins, Shuttles, Etc.
THOMAS B. HAIGH. Double Loop Bands, Spinning Tape, Etc.
DRONSFIELD BROTHERS. Grinding Machinery and Emery Filleting.
HARDING'S Fallers, Pins and Circles.
The Best French and English Combing and Rubbing Aprons.
Card Flats reclothed and Lickers-in rewound.

UNIVERSAL WINDING MACHINES

PARTS ALL INTERCHANGEABLE

TRADE MARK REG. U.S. PAT. OFF.

UNIVERSAL NUTAPER CONES

Are the best supply for a knitting machine for the following reasons:

1. The yarn retains its original elasticity and twist because:
   (a) By the "Universal System" it is wound with a light tension and not subjected to the rubbing pressure of a friction drum.
   (b) The guide delivers the yarn at the cone itself and does not draw it on with a rolling motion from a greater distance than the length of the fibre.
2. Nutaper cones can be ordered with any desired degree of "openness;" the correct "spacing" once being determined remains absolutely uniform for any number of cones and for all the layers of any one cone.
3. All the yarn will run off "clean" because—
   (a) The taper (or pitch) is correct, having been determined by exhaustive tests on a great variety of knitting machines.
   (b) The paper cone tube has the same acute taper (or pitch) as the outer surface of a full cone and there is no "drawing in" or "bunching" of the first few coils.
   (c) No. 50 "Universal" machines do not make "Cobwebs" or "overruns."

UNIVERSAL WINDING COMPANY

PATENTEES AND SOLE MANUFACTURERS

BOSTON

Buy your Sunshine by the Barrel

Fill your factory with it. If your ceilings and walls *absorb* instead of *reflect* light you are getting only a fraction of the light you ought to have. "Barreled Sunlight" will give you ALL of it, lengthen your daylight day and cut down your lighting bills. It will increase your present lighting 19 to 36 per cent.

RICE'S MILL WHITE

The only oil paint (without varnish) giving a glossy tile-like finish

will fill your factory with sunshine. Its glossy surface will not absorb light or collect dirt, germs and odors like a flat paint. It can be washed like tile.

Rice's Mill White will not scale and require frequent renewals like a cold-water paint. It will not "alligator" and crack under the jar of machinery like a varnish paint. It flows easily under a 4" brush; two coats equal three of lead and oil. *It stays white longer than any other gloss paint.*

The Original Mill White

Rice's Mill White made a trade name of the words, "Mill White." None of its imitations has its elastic, permanent qualities. No other paint manufacturer can use the Rice process. Rice's Mill White for ten years has proved itself unequalled for illuminating power, sanitary qualities and low ultimate cost.

Write for Booklet and Sample Board

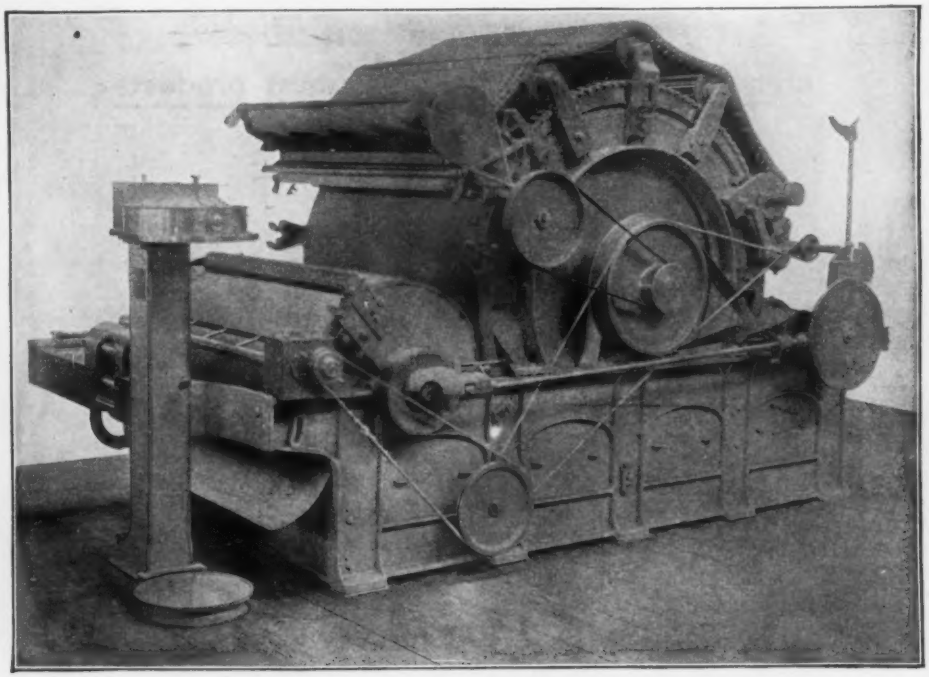
Ask for a copy of our booklet, "More Light." *Write today.*

U. S. Gutta Percha Paint Company
No. 20 Dudley St., Providence, R. I.

MASON MACHINE WORKS

Taunton, Mass. **Greenville, S. C.**

Builders of
Revolving Flat Cards, Drawing Frames,
Spinning Frames, Looms, Dobbies, Etc.



Superior Loom Cranks for Repairs

By adaptation of

Josephy

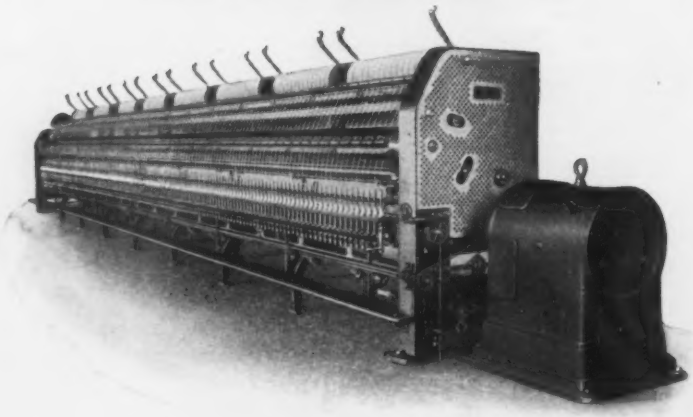
Cards & Ring Spinning Frames

for Wool, Cotton-waste, Vicuna-cotton, Flax-waste, Etc.

you get

highest output finest products

save on costs of production

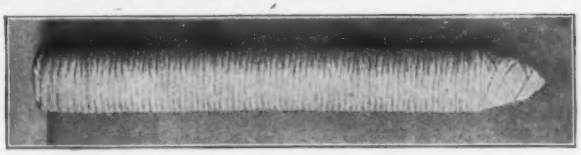


Call for information and estimate from sole agent for U. S. A.

FELIX BRECHER, 927 Lafayette Building, Philadelphia, Pa.

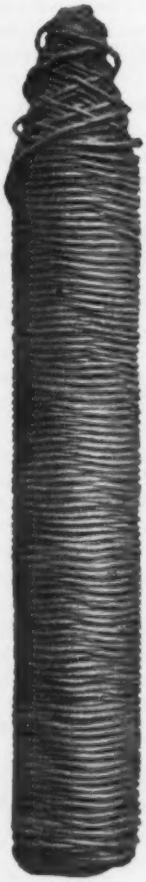
or directly from

G. Josephy's Erben, Bielitz, Austria

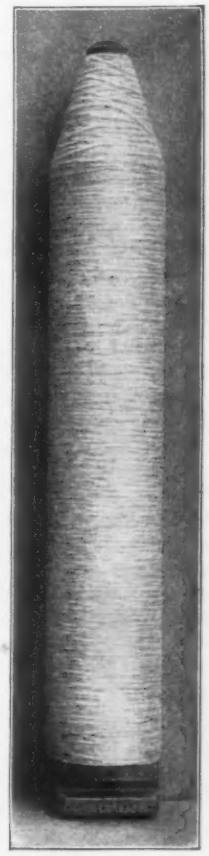


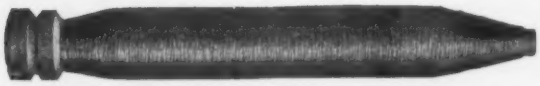
No. 2

No. 1 and No. 2—Cops to weave from inside seven-eighths to three inches diameter and up to seventeen inches long. Suitable for various kinds of coarse goods such as grass matting, cotton bagging, cocoa matting, all kinds of carpets, felts, chinchilla, linen, jute, flax, asbestos, hose and narrow fabrics such as wicks, belting, webbing, surcingles, halters, etc.



No. 3 and No. 4 Shuttle Bobbins from seven-eighths to two inches in diameter and any length up to twelve inches. Suitable for all kinds of duck, upholsteries, tapestries, asbestos, ratana or any kind of fancy yarns for automatic or other looms.





No. 1 No. 4 No. 3

OSWALD LEVER CO., Inc.

Lehigh Avenue and Front Street, Philadelphia, Pa.

Builders of Textile Machinery WINDERS ESPECIALLY

Parks' Piping Parables

You can teach an old dog new tricks a dumb site easier than you can tear him loose from old ones

This is a story about a plant to which many sizeable additions had been made. Like many others, it had grown up around the original building—until in 1907 it became apparent that the power and heating requirements were out of balance.

The power equipment was like this.

In the boiler house were seven horizontal return tubular boilers, and 200' away on the first floor of the mill was the engine room. Five of the boilers supplied direct steam to dye-house and for heating; the other two furnished steam to two engines, one a 400 H. P. tandem compound supplying power, and the other a 200 H. P. for lighting.

To study the problem, a graphic chart was made by our Engineering Department indicating the "heat unit" load; and a comparison made for the past ten years of weather bureau statistics.

A curve was then plotted to determine the number of heat units available from the exhaust of the large engine, plus those available night and morning from the lighting engine; it being a peculiar thing that the lighting and heating load were almost co-incident.

THE G. M. PARKS CO.
FITCHBURG, MASS.

Gentlemen:—

We burn.....tons of coal. Will be interested to learn of methods for reducing this amount.

Name .....

Address.....

An analysis of these two charts showed that the utilization of all the heat from the engines would, if no mechanical difficulties prevented, provide warmth for the entire mill; would provide hot water as desired for the dye-house, and supply enough water at 165 degrees for the boilers—until the thermometer outside registered 23 degrees below zero.

So here was the answer.

We will warm the mill with hot water, which in turn has been warmed by exhaust steam formerly thrown away; and at the same time we will warm enough more so that the dye-house folks, if they want it, can have 900 gallons at 165° every hour.

Then again, as long as we are at it, we will warm enough for the boilers. We won't depend on heating the feed water with dryer returns, but we will take those dryer returns and absorb them in the general scheme.

We will save all the direct steam it took to do these things by just collaring a few million heat units and putting them back to work.

All this leads to what?

Just this. Those heat units were supplied before from boilers. If we can get the heat units from another source, it is a mere matter of deduction that some of the boilers will not be necessary. As a matter of fact, we were able after the installation of this job to shut down four boilers in summer and three in winter.

This gave another chance for gain. Not so many boilers; better draft. Better draft, better combustion.

Again—

If the dye-house gets hot water just when needed; if the crews do not have to wait to heat up the dye-kettles with steam; then obviously more dyeing with the same crew—or less crew for the same dyeing.

I am not going to burden you with technical description of this job. But I would like to call your attention to a new use of a well known principle which the Parko System of Hot Water Heating employs.

In fact you are very familiar with it. You have one in your own home, on a small scale in the kitchen range and storage tank.

Now, what most of you are trying to do in your mill is to heat your water without the very desirable feature of the storage tank.

Water has a peculiar way of storing up heat, and if you can do it slowly as you can do it at home with the range and a very small coil of pipe, you can have all the hot water you want at a minimum expense.

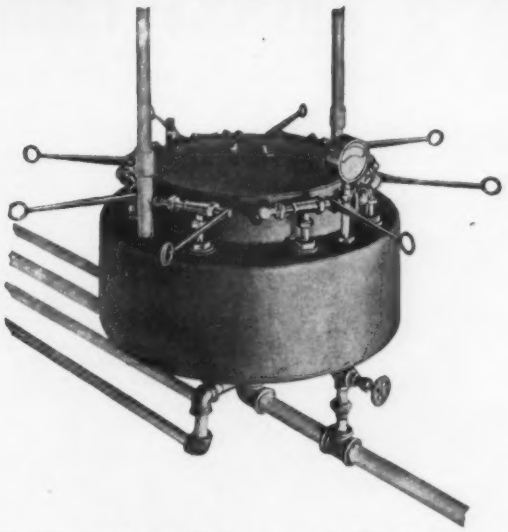
The Parko System of Hot Water Heating does not create heat units, it conserves them; it bids delinquents not to get busy or get out, but to get busy before getting out.

This sort of work is engineering. Engineering of the highest order; and this sort of work has been our business for over forty years.

Your problem of power, heat, ventilation and humidifying is really one large problem which should be looked at as one—by men of experience.

The G. M. Parks Company
Fitchburg, Massachusetts

To Humidify Small Spaces at Small Cost



USE THE TURBO CLUSTER TANK

Knitters and others who wish to humidify single rooms or departments have been demanding smaller installation units than were heretofore obtainable—and ***now*** we are ready to meet the demand with The Turbo Cluster Tank System.

You can install one tank and later add more units to the system if desired.

YOU CAN BUY IT BY MAIL

This means that The Turbo Cluster Tank System is extremely simple. The selling plan is arranged to keep the cost low. Here's how it works:

(1) You answer by mail a few questions regarding the space to be humidified.
(2) We figure out the pipe sizes, Turbo Heads required, etc., and supply a typical drawing showing how the system should be erected.
(3) One of your own men or a local piper or plumber then installs the system, for it is—with the instructions supplied—a simple job of piping.

The Turbo Cluster Tank System for humidifying small spaces is what you see plus a few dollars worth of pipe and fittings and a small amount of labor. Remember, however, that **its essential feature is The Turbo Humidifier** (the Humidifier with the Guarantee).

To start things, just drop us a line telling the size of the space you want "Turbofied" and what you use it for. Then we will show you how easy it is to be "Humidifyingly Satisfied"

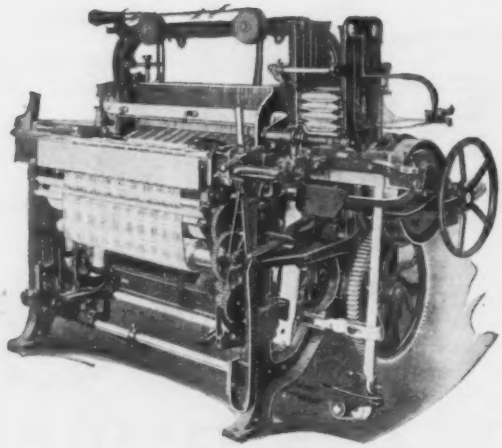
The G. M. Parks Company

Fitchburg, Mass.

Southern Office, 200 Commercial Bank Building. J. S. Cothran, Manager.

TURBO TRADE MARK HUMIDIFIER

Crompton & Knowles Loom Works



Automatic Gingham Looms

One of our latest productions for weaving goods of two or more colors in the filling. Like every loom we build, it has the advantage of a successful mill test.

WORCESTER, MASS.

Providence, R. I. **Philadelphia, Pa.**

Southern representative, ALEXANDER & GARSED, Charlotte, N. C.

"SAFETY FIRST" — THEN ECONOMY

You Get Both in

FIREPROOF "Hurricane" DRYERS

(STEEL CONSTRUCTION WITH ASBESTOS INSULATION)

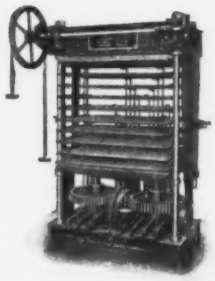
Built in many sizes and types for

RAW STOCK, YARN, CLOTH, KNIT GOODS, ETC.

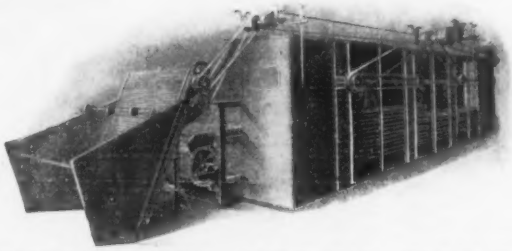
Endorsed by all Fire Underwriters—securing lowest fire insurance rates

AUTOMATIC YARN DRYER

Most Economical Method of Drying Yarn, Slubbing, Braids, etc.



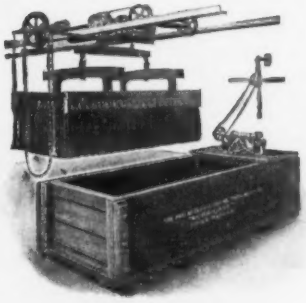
Power Screw and Hydraulic **PRESSES**



AUTOMATIC STOCK DRYER

(With Sectional-Continuous Conveyor)

For Cotton, Wool, Hair, Rags, Etc.



Yarn Dyeing Machine

"Hurricane" Circulating DYEING Machines

Built in Various Sizes and Types for Skein Yarn, Slubbing, Hosiery, etc.

The Best Dyeing at the Least Expense

COMPLETE EQUIPMENTS FOR

BLEACHING, SCOURING, DYEING, CARBONIZING

THE PHILADELPHIA DRYING MACHINERY CO.

Main Office and Works:
6721 Germantown Ave., Philadelphia, Pa.

Boston Office:
53 State Street

A Few Spaces Open

A VERY FEW

THE

FOURTH NATIONAL TEXTILE EXHIBITION

Auspices Textile Exhibitions Association, Inc.

Mechanics Building,
Boston, Mass.

APRIL 27 TO MAY 2, 1914

If you are planning to exhibit write us at once for particulars and list of exhibitors

If you delay, it will mean disappointment later

Address all communications to

CHESTER I. CAMPBELL, Secretary and General Manager

Executive Offices, 5 Park Square, Boston,

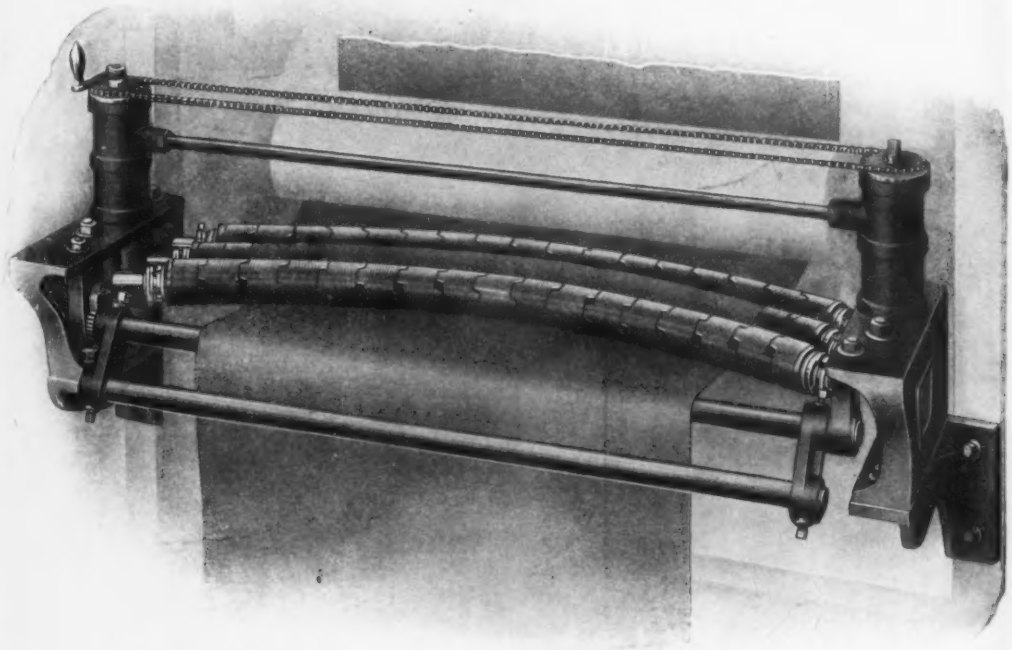
THOMAS LEYLAND & COMPANY

F. T. Walsh, Manager

60 India Street, Boston, Mass. WORKS AT READVILLE, MASS.

Sole Manufacturers of THE WILLIAM MYCOCK

Improved Regulating Cloth Expander

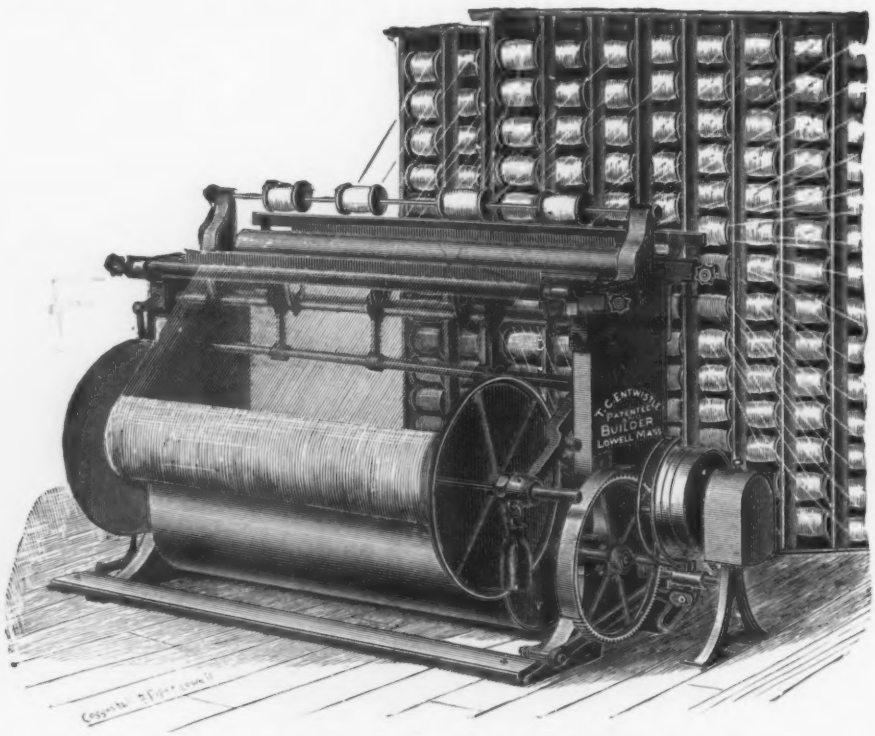


Expander attached to Calendar showing Regulating Motion and Adjustable Tension Bars

This Expander and its improved features are fully protected by basic United States patents, under which the builders will maintain their patent rights against any who may violate such rights by building, selling or using machines of this character.

Scutchers, Sewing Machines, Open Bleaching Machines, Blanket Washers for Calico Printers, Guides, Etc.

Cotton Machinery by Specialists



Warping Machine

T. C. Entwistle Co.

Southern Representative:
J. H. MAYES, Independence Bldg.
Charlotte, N. C.

Northern Representative:
WM. V THRELFALL, Marshall Bldg.
Boston, Mass.

Cotton Machinery by Specialists

Pickers and Revolving Flat Cards

POTTER & JOHNSTON MACHINE CO.

Pawtucket, R. I.

Drawing and Roving Machinery

WOONSOCKET MACHINE & PRESS CO.

Woonsocket, R. I.

Ring Spinning and Twisting Frames

FALES & JENKS MACHINE CO.

Pawtucket, R. I.

Spoolers, Winders and Reels

EASTON & BURNHAM MACHINE CO.

Pawtucket, R. I.

Warpers and Beamers

T. C. ENTWISTLE CO.

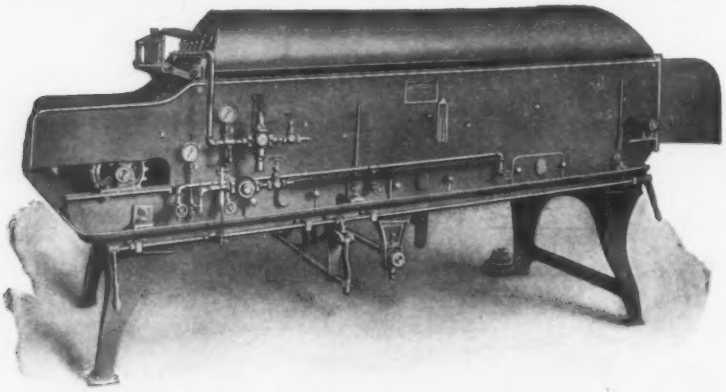
Lowell, Mass.

Southern Representative:
J. H. MAYES, Independence Bldg.
Charlotte, N. C.

Northern Representative:
WM. V. THRELFALL, Marshall Bldg.
Boston, Mass.

The Yarn Conditioning Machine

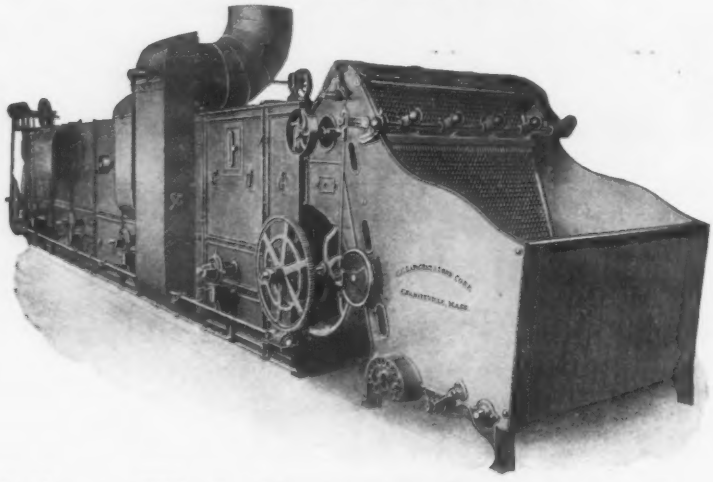
Sets the twist in your filling and overcomes kinky filling difficulties. It conditions without injuring the bobbins



The Sargent Drying Machines

Metal Construction
Asbestos Insulation

Scientifically designed for greatest economy in drying Cotton, Wool, Hair.



Wool Washers, Wool Dusters and Openers, Burr Pickers
Complete Carbonizing Plants
Automatic Feeds for Cotton and Wool

C. G. Sargent's Sons Corp., Graniteville, Mass.

5,000,000 Broken Buttons

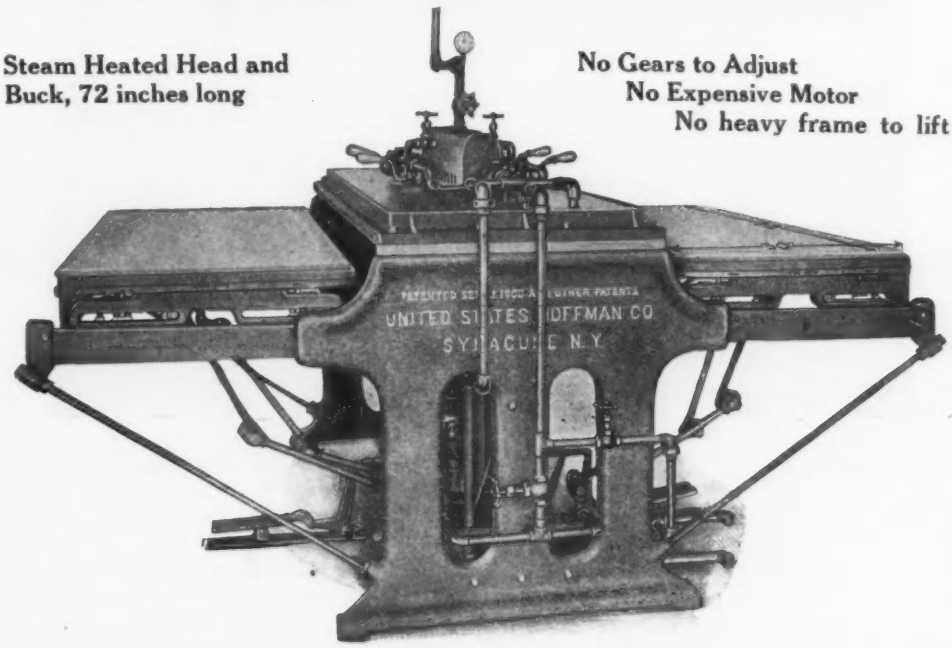
That's the loss one Underwear Manufacturer sustained in 1912

Last year it was all eliminated

The "Hoff-Man" Does Not Break Buttons

Steam Heated Head and Buck, 72 inches long

No Gears to Adjust
No Expensive Motor
No heavy frame to lift



"Hoff-man" "FFF" Underwear Press

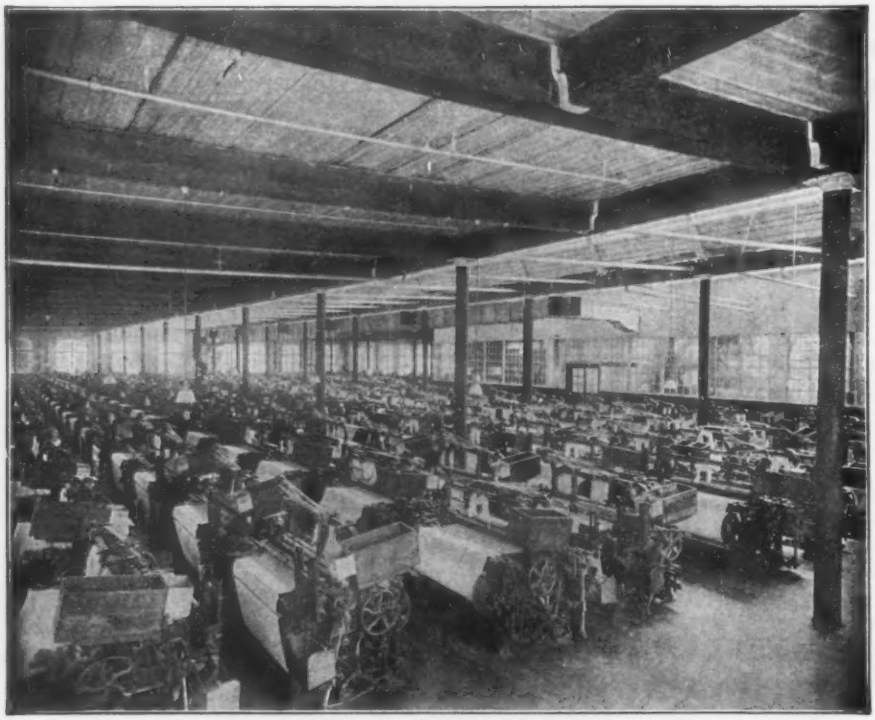
It Presses Without Squeezing

Live Dry Steam Applied to Your Product Will Improve Its Appearance

Send Samples For Proof

United States Hoffman Co.

Syracuse, N. Y.



Another recent installation

400 "Ideal" Automatic Looms

on 5 harness sateens

These looms were installed as the result of a test during which the superiority of Stafford Looms over all competitors was clearly demonstrated

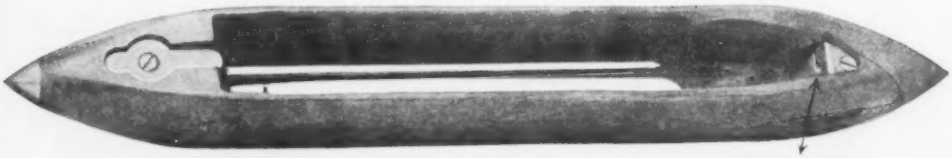
THE STAFFORD COMPANY

READVILLE, MASS.

FRED H. WHITE, Southern Agent - - Charlotte, N. C.

New Hand-Threading Shuttle

The Caron Patent Hand Threader



This "THROAT PLATE" (slightly enlarged) is so designed that the Yarn *cannot "Balloon"*

This "SIDE EYE" (slightly enlarged), made in two parts, *prevents unthreading.*

The Simplest and Most Quickly Threaded Shuttle Made

It can be filled with the finest silk or the coarsest filling—will neither *unthread* nor "*balloon*"—lint that accumulates is easily removed—felt can be inserted for tension purposes—and being a hand-threading shuttle, it is sanitary.

This shuttle is entirely different from all others. It has been severely tested for a year by large mills and is the most effective hand threader on the market.

Trial orders solicited—Satisfaction guaranteed

Paper Cop Tubes Cones and Shells

Send your samples and we will quote prices on any lot desired

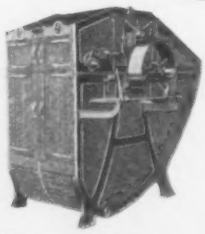
Shuttles and Shuttle Irons

For All Textile Purposes

American Textile Specialty Machinery Co.

670 Eddy Street - Providence, R. I.

13th St. and Boulevard, Long Island City



DRIVING SIDE

The Hunter

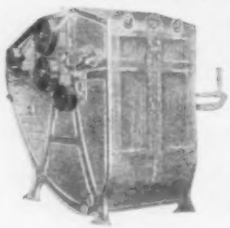
NO. 10
FULLING
MILL

GEAR DRIVE

CLOTH WASHERS

PEICE DYE
KETTLES

SOAPING
MACHINES



BELT DRIVE

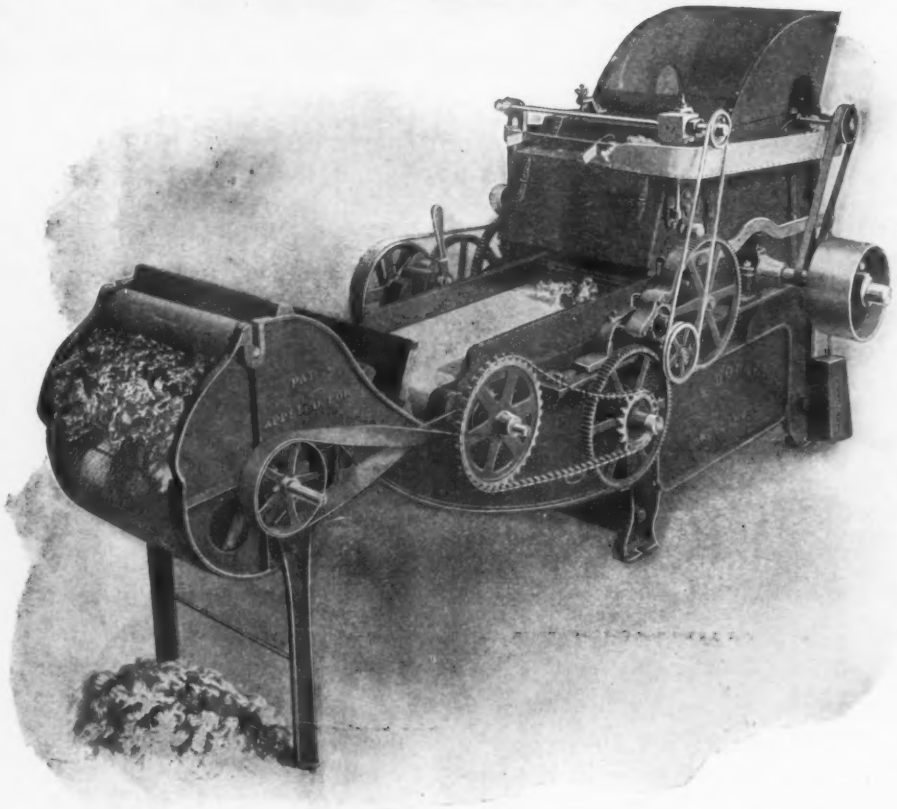
ROPE DRIVE

JAMES HUNTER MACHINE CO.

NORTH ADAMS, MASS., U. S. A.

Hess-Bright Ball Bearings

ARE USED ON DODGE SHODDY PICKERS



That is One Reason Why These Pickers Are So Successful

HESS-BRIGHT BALL BEARINGS
Built for Endurance

Are Adapted to the Widest Possible Range of Service

Look for them in the machinery that you buy for your mill.
Their use is an assurance of quality.

The Hess-Bright Manufacturing Company

Pioneers in the introduction of Annular Ball Bearings

Front Street and Erie Avenue, - - Philadelphia, Pa.

PHILADELPHIA, 666 North Broad St. NEW YORK, 1974 Broadway CHICAGO, 1800 Michigan Ave.

TRADE MARK

HB- DWF

→ See next issue for advertisement of The NEW Hess-Bright Ball Bearing Hanger ←

Starch

THE particular case of your own mill needs careful study to determine what starch is best suited to *your* SIZING and FINISHING problems.

We have reduced the manufacture of starches for textile work to a science by years of factory investigation and laboratory research. We are ready to take up the special case of your mill and point out to you what starches are most adaptable and reliable for your purposes.

Six years of careful investigation of conditions in the cotton mills of the country has taught us the needs of the trade.

Six years' research in the best equipped Starch Laboratory in America has put us in touch with starch chemistry.

Six years of manufacturing, with cotton mill problems in mind, has produced our special Brands of Textile Starches.

We want to send our special starch expert to your mill. We want him to go into the matter of sizing with your boss of slashing—check up your sizing processes—find out whether you are now using the starches that will insure you the most efficient and economical results.

This special starch expert service is absolutely free—send us a sample of the starches you are using. We will give you an exact analysis of them and send our practical man to study your needs. Write a letter now to our Mill Starch Department.

Corn Products Refining Company
NEW YORK

Starch

G&K

Educational Talks on Leather Belting.

Proper Installation of Belting

The proper installation of belting is just as fundamental to transmission efficiency as the proper selection of weight, quality and thickness. Maximum service may be obtained from belting by following certain general and long established rules.

First—Be sure pulleys are in line and shafts parallel

Probably more belting is ruined by improperly lined shafting and pulleys than by any other cause. Belts operating under such conditions are often kept on the pulleys by guides. They sometimes rub against hangers or portions of machines. As a result a lap starts open, the belt catches and tears. If no such accident happens, the belt usually stretches excessively on one edge. Belts so stretched will not run straight and are apt to run off the pulleys and become torn or otherwise damaged.

Test: If a belt climbs to one side of the pulleys look for trouble in the shafting. Turn the belt around, and if it still climbs to the same side of the pulleys you have proved that the shafting is out of line.

Remember that because shafting was once in line it does not follow that it stays so indefinitely.

Second—Avoid putting on belts too tight

When belts operate too tightly the leather is overstrained and injured. There is excessive friction at the bearings with a consequent loss of power. If belts run too loosely, they are likely to flop around and jump from the pulleys, especially where loads are intermittent or suddenly applied.

The slacker a belt can be run and transmit the required power without slipping the greater the economy of the drive.

Third—Be sure that every belt runs in the proper direction

Single belts should be put on so as to run with the grain or hair side next to the pulleys. All belts should be put on so that the points of the laps on the outside of the belt point away from the direction in which the pulley is revolving.

Fourth—Exercise care when joining belting

A cemented lap is not difficult to make, and is the most satisfactory method of joining a belt. It means increased life, smoother running, fewer repairs and therefore greater machine production. When a cemented lap is not practical, a laced joint is the next best method. But this joint must be made properly, extreme care being used to have all strands under equal tension, or a crooked belt will result. Always avoid the use of large lacing holes—they weaken the end of a belt, also avoid unnecessary bunches of lace—they cause slipping.

Fifth—Avoid water, oils, greases, etc.

Ordinary leather belting should not be used where any of these destructive elements are present unless it is possible to protect the belting by mechanical means. But remember that G. & K. Neptune belting will withstand moisture and water, and is guaranteed not to open at the laps or between the plies even when wholly submerged. G. & K. Spartan Belting is guaranteed to resist the action of water, oil, acid fumes, and steam.

While we have offered above only a few general suggestions about the proper installation of belting, we wish to emphasize the importance of this point in securing an efficient drive. In the case of special drives, the details must be analyzed and the best belt secured. Our Engineering Department will gladly investigate any drive and recommend the proper belting and installations.

Our "Belting Manual" fresh from the press contains ninety pages of useful mechanical rules and valuable information about belting and its proper installation, selection and care. A copy will be sent you gratis on request.

Subject for next month: "The Care of Belting."

The Graton & Knight Mfg. Co.

Oak Leather Tanners and Belt Makers

WORCESTER, MASS., U. S. A.

"ALTEMUS"

The last word in Winders for all classes of textile work

SPECIAL

Winder for Artificial Silk

from Skein to Bobbin

This Winder has been a SUCCESS for this class of work FROM THE BEGINNING for the plaiting of yarn due to the fact that WE KNOW HOW to build the machine for the difficult problems of its use; while to handle the yarn according to our instructions is a simple matter.

There is no other machine to do this class of Winding to give production or quality of work to equal the ALTEMUS

ESTABLISHED 1865

JACOB K. ALTEMUS

Textile Machinery

Machinery for
WINDING, WARPING,
SPOOLING, BEAMING,
and kindred use

2824 N. Fourth Street
Philadelphia, Pa.
U. S. A.

FIG.20.

Oblong Style

Heavy, strong cotton duck. Leather binding. Full length frame pockets. Handles securely fastened. Renewable hardwood shoes. Made also with iron shoes (Fig. 38) dragged but little.

Lane Canvas Mill Baskets

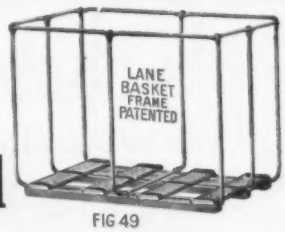


FIG 49

Lane Basket Frame

Round spring steel. Uprights fastened to hoop by *flexible eyejoints*, guaranteed against breakage. Light and exceedingly strong.

Boxes and Trucks

Essentially

Profit Makers

Lane	*Others*
Smooth, flexible surfaces	Nails, splinters, unyielding
ELIMINATE WASTE	**MAKE WASTE**
Light Weight	Heavy and Clumsy
GREATER HELP EFFICIENCY	**UNNECESSARY FATIGUE**
Life measured by years	Their days are numbered
LOW ULTIMATE COST	**HIGH YEARLY EXPENSE**

Why not line up in the Lane Column?

FIG.27

Lane Truck

Made as shown, or *with Duck Partition*. Mounted on stationary frame casters, with *thread guards*, as above, or on swivel frame casters.

"A Style for every use"

Write for Catalog and Prices

W. T. Lane & Bro.

Manufacturers

Poughkeepsie, N.Y.

FIG.22.

Round Taper

Materials and constuction same as Fig. 20. Made also with iron shoes (Fig. 38) if desired.

Stop your gear noises

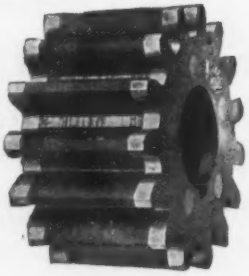
by installing NEW PROCESS NOISELESS PINIONS

Ever notice people stop conversing and thinking while a fast train passes—simply because the noise prevents brain, voice and ears from working efficiently ?

Then how can you expect workmen to be constantly efficient in a shop filled with high speed metal-to-metal gear drives that are noisy all day long ?

Forced attempts to combat the ring, roar or rattle of fast or badly meshing metal gears only waste nervous energy, strain the voice, irritate temper. Naturally mistakes occur and the shop output is diminished.

New Process Pinions entirely relieve this mental depression. The gentle hum they produce even at highest speeds, is eagerly welcomed in place of the metallic noises.



Further, the quiet of New Process Pinions indicates highly efficient and economical driving conditions — no vibration and no power waste. And a New Process Pinion will do more hard work than will any other quiet gear.

Our book "Noiseless Gear Driving" cites many instances where New Process Pinions have saved money over metal pinions. Ask for your copy.

NEW PROCESS IS TO ALL OTHER RAWHIDE AS STEEL IS TO IRON

NEW PROCESS GEAR CORPORATION

SYRACUSE, N.Y.

Canadian Agents: Robert Gardner & Son, Ltd., Montreal

86

SMITH, DRUM & CO.

"BUILDERS OF THE BEST"

Labor Saving Machinery for Dyeing, Singeing and Finishing

HOSIERY

IN SULPHUR, ANILINE, DEVELOPED BLACKS AND COLORS
POWER SCREW PRESSES and MERCERIZING MACHINES

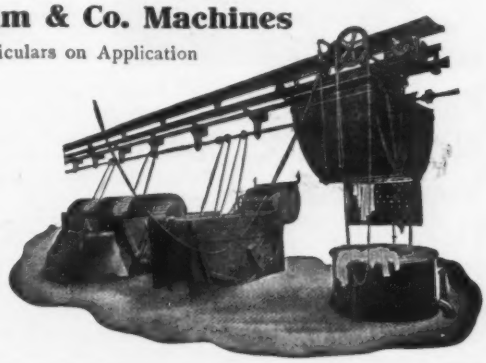
SAVE LABOR and **DYE STUFF** and do **BETTER WORK**
in your dye house by using

Smith, Drum & Co. Machines

Full Particulars on Application

Coral and
Cumberland Streets,
Philadelphia,
Pa.

Southern Agent
H. G. MAYER
Realty Bldg.,
CHARLOTTE, N. C.



LAWSON'S

Hope Foundry, LEEDS, England

BRANCH OF

Fairbairn Lawson Combe Barbour, Ltd.

MAKERS OF MACHINERY FOR

Preparing and Spinning

Flax, Hemp, Tow and Jute

Special Machinery
For the Manufacture of
Twines, Rope Yarns and Binder Twine

Good's Combined Hackling and Spreading Machines.

Long Reach Screw-Gill Drawing Frames. Chain-Gill Drawing Frames with Apron Heads.

Patent High-Speed Horizontal and Automatic Spinning Frames for Manila.

Improved Laying Machines.

Haskell-Dawes Tubing Twisters.

Brownell's Patent Twisting and Laying Machines for Twine.

N. B.—Complete Plans and Estimates for Flax, Tow, Hemp and Jute Mills, Trawl Twine Factories and Steam Ropeworks.

Economical Cotton Dyeing and Bleaching

In the Psarski Dyeing Machine

SAVES FIBRE

Saves Labor—Saves Dyes—Saves Drugs—Saves Steam—Saves Water

Sulphur—Developed—Vat Dyes
Done Equally Well

Raw Stock Dyeing—The cotton goes to cards in as good condition as directly from bales. Is not rolled into balls and strings.

Bleaching—Bleached and Washed PERFECTLY CLEAN—FREE FROM CHLORIN OR ACID. 3½ hours to batch. Is not pounded and twisted into practically waste.

Skein Dyeing—No Boiling Out—No Tangles—Yarns are left Smooth and in perfect condition for winding, knitting, etc.

Hosiery—Recommended size of machine does 300 pounds to batch, SULPHUR OR DEVELOPED BLACKS. It is not Roughed—No Singeing required—No Sorting—No damaged.

15 to 20 per cent Saving in Drugs

THE PSARSKI DYEING MACHINE COMPANY

3167 Fulton Road :: :: :: :: CLEVELAND, OHIO

A NEW METHOD for both Straight Cutting and Pinking Samples

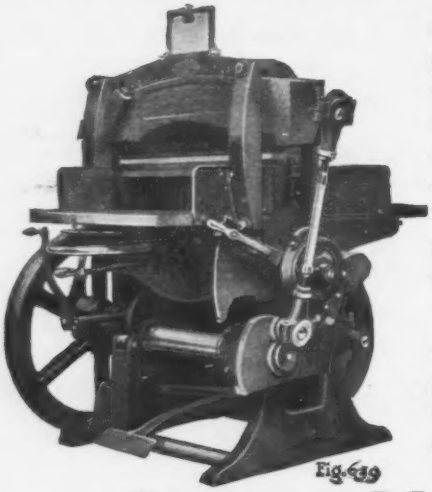


Fig. 639

at a great economy of time and cloth is possible on the NEW OSWEGO AUTOS, equipped with back gauge size duplicating attachment and any length of iron back table desired, and other equipment especially adapted to each case for the most rapid production. The instant adoption of the OSWEGO Cutters by many progressive American firms indicates their success on all kinds of textiles, etc.

Thirty-five stock sizes and styles, from 19 in. to 84 in. (larger sizes to order), enable you to select any size or style or price OSWEGO you desire. Each OSWEGO Cutter is guaranteed and the best producible.

Oswego Machine Works

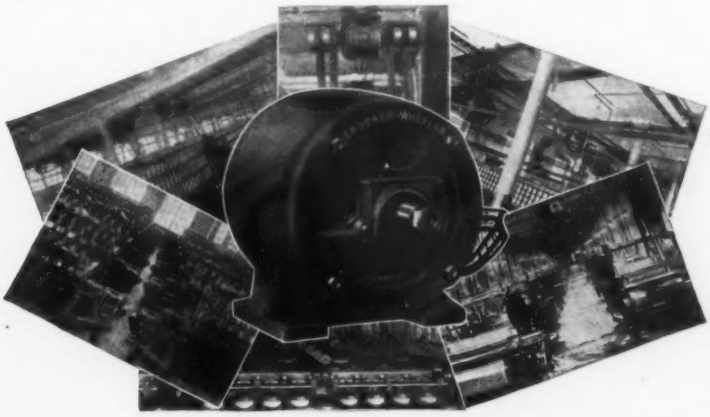
NIEL GRAY, JR., Proprietor **Oswego, N. Y.**

CROCKER-WHEELER

Special Textile Motors

"Do it Electrically"

The special squirrel cage induction motor, shown in the center of the accompanying illustration, has been developed exclusively for loom drive. Dust-proof bearings and spring oil-covers with felt gaskets protect the motor from floating lint and dust. The oil chambers are of liberal capacity, so designed as to permit rapid inspection of oil rings and oil level and quick replenishment of oil supply.



A salient feature of these motors is the smooth and uniform acceleration in starting which is so essential for successful loom drive. They have high efficiency and power factor, while starting torque and other operating characteristics may be varied as best suited to the particular service required.

If you are interested, we suggest that you fill out the attached coupon and mail it to the nearest of our offices listed below.

Standard Motors Promptly Shipped From Large Factory and Branch Warehouse Stocks.

Crocker-Wheeler Co., Ampere, N. J.

Offices at

Ampere	Chicago	Houston	New York
Baltimore	Cincinnati	Indianapolis	Philadelphia
Birmingham	Cleveland	Los Angeles	Pittsburg
Boston	Denver	Newark	Salt Lake City
Buffalo	Detroit	New Haven	San Francisco
Charleston			Syracuse

Crocker-Wheeler Co......

Dear Sirs:

We have alternating current.....**volts**..... *phase* ..... *cycles.* *We have direct current*..... *volts*

Send us information on motors for driving.....

.....

Name.....

Address.....

The Old and Dingy Mill Made Bright

Here we have a thick walled, narrow windowed plant, and a modern concrete and steel "daylight" structure. No dark corners remain in either—both fairly sparkle inside, for both are finished with Chaffee's Mill White. This "paint with a purpose" has practically equalized the lighting conditions.

Any mill with an average window area can approximate the ideal natural lighting of "window walled" plants by a Chaffee "treatment." Instead of the dark, dingy walls and oil-soaked ceilings that absorb daylight, Chaffee's Mill White produces a flint-like surface of *intense white* that reflects and diffuses the light—prevents accidents, aids the workmen, and stretches daylight, postponing artificial lighting.

Chaffee's Mill White

Gives: More Years of Wear—33% More Light—Sanitary Finish

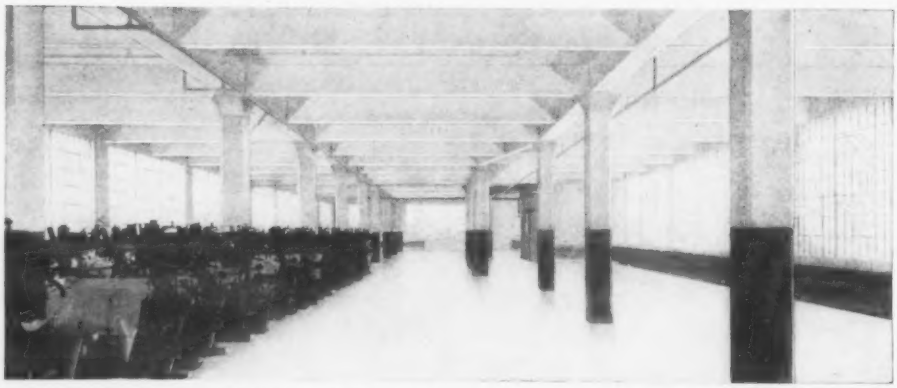
Its intense body, easy working qualities and far reaching capacity decreases cost of application (⅔ total cost) practically balancing the difference in its cost as compared to that of inferior preparations.

This permanent and impenetrable coat of pure white will not flake or crack off. It sheds dirt, is easily washed and *will not turn yellow* with age as do oil paints.

Send for sample panel. See this paint and note its "difference." Test its elastic qualities that prevent cracking even on ceilings that warp, vibrate and sag under the stress of moving loads—test its light-reflecting qualities that produce the bright, cheerful "out of doors" interior known as "better working conditions" giving 25 to 33% more light.

Write Department Y if you are interested in a paint unequalled in light-giving properties—endurance and ultimate low cost.

The New and Bright Mill Made Brighter



THOMAS K. CHAFFEE CO. **PROVIDENCE, R. I.**

3 YARD WIDE

SCHOENHERR

WILTON LOOMS

—BUILT BY—

Saechsische Webstuhl-Fabrik

OF

CHEMNITZ

A. W. BUHLMANN

TEXTILE ENGINEER

200 Fifth Avenue, New York

American Representative

If you require Looms for weaving Wilton, Brussels, Chenille, Axminster and Velvet carpets, it is advisable to consult me

Cut Down Your Weighing Costs

The elimination of time-consuming operations in your weighing system means greater efficiency in your plant

Toledo Automatic Heavy Capacity Scales

Are saving 20% in the cost of weighing for a large number of concerns today. They are absolutely automatic in operation. There are no loose weights to take the time of the operator, or springs which vary with changes of temperature. Place the article to be weighed on the platform of scale and instantly and automatically its exact weight is shown on the large dial, easily readable at a distance of twenty feet.

FRONT VIEW OF TOLEDO DORMANT SCALE

The floating compensating pendulum counter-balancing mechanism gives accurate results on floors which are not level—it is unnecessary to level up or balance scale every time it is moved from one place to another. This distinct advantageous feature of the **Toledo** is found in no other scale in the world.

The mechanism is as simple as it is possible for mechanical and inventive ingenuity to make it, is exposed to view and is encased in an absolutely dust-proof housing. In this mechanism friction is practically eliminated.

Toledo Automatic Heavy Capacity Scales are made in both portable and dormant styles with weighing capacities from 250 pounds up to 1500 pounds. Let us send you full information on how to cut down your weighing costs through the Toledo System, and letters from prominent users.

TOLEDO SCALE COMPANY

TOLEDO, OHIO

Canadian Factory, Windsor, Ont. **Offices in all Large Cities**

"No more repair bills for that Roof"

Think of the money you could have saved if your buildings had been covered with a roofing that never had to be coated, graveled or repaired! Not one cent has to be spent for coating or repairs where buildings are covered with

J-M ASBESTOS ROOFING

It is the cheapest per-year roofing on the market.

J-M Asbestos Roofing is mineral throughout—layer upon layer of pure Asbestos (rock) fibres everlastingly cemented together with Trinidad Lake Asphalt—literally a *sheet of pliable stone.* Contains no perishable substance Has been in service on hundreds of buildings for over a quarter century and is sound to-day.

Keeps buildings cool in summer, warm in winter, and affords perfect fire protection.

Anyone can apply it. Don't take a substitute. J-M Roofing Cleats packed in each roll, make absolutely watertight laps and give the entire roof a handsome white appearance. Our nearest Branch will ship direct if your dealer can't supply you.

Write today for Sample and Catalog

H. W. JOHNS-MANVILLE CO.

Albany Buffalo Cleveland Indianapolis Louisville New Orleans Philadelphia Seattle
Baltimore Chicago Dallas Kansas City Milwaukee New York Pittsburgh St. Louis
Boston Cincinnati Detroit Los Angeles Minneapolis Omaha San Francisco Syracuse
THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED. Toronto Montreal Winnipeg Vancouver 1964

Advantages of Schaum & Uhlinger Centrifugals

Successful.—Over 1300 firms have purchased Schaum & Uhlinger Hydro Extractors—some of them as high as 50 machines. Repeat orders are constant. Our product represents 50 years of success.

Convenient.—Schaum & Uhlinger Centrifugals are made for steam, electric or belt drive, to suit your conditions. Side, top, or under-driven as the occasion requires.

Electric Motors designed for all commercial currents or voltages. Self balanced, avoiding the necessity for heavy foundations.

Model "B" Electric Driven Baskets:- 30" 36" 42" 48" 54" 60"

Dependable. — Drive in every instance is one that has proved itself through years of hard work. Direct drive, positive, rigid construction, responsive control.

Each machine is given a thorough running test before leaving the factory, and all parts perfectly adjusted.

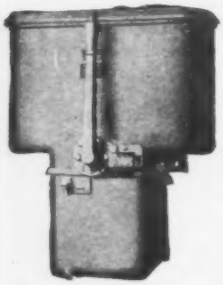
May we send you our catalog on Hydro-Extractors?

Schaum & Uhlinger, Inc.
204 Glenwood Avenue
Philadelphia.

WESTINGHOUSE CONTROLLERS

For Textile Mill Motors

are specially designed to meet every condition of this difficult service. Their chief features are perfect safety and thorough reliability.



Two-Point Auto-Starter for Conduit Connections—Used where the motor cannot be connected directly across the line on starting. Connections are made through conduit, no exposed wiring. Only 6 connections needed for three-phase circuits and 8 for two-phase. Provides overload and no-voltage protection. Contacts are oil immersed and are easily renewed. Supplied in all sizes above 5 H. P.

Four-Frame-Drive Oil Switch—Specially designed for this service. Connects a 20 H. P. motor directly across the line. Provides overload and no-voltage protection. Arranged for mounting on the ceiling.

Textile Motor Oil Switch—Supplied for motors of all capacities up to 10 H. P. Reversing and non-reversing; hand or remote control. Non-automatic. Very simple and compact. Arranged for conduit connection. Thousands in use.

SEND FOR FULL INFORMATION

Westinghouse Electric & Manufacturing Co.

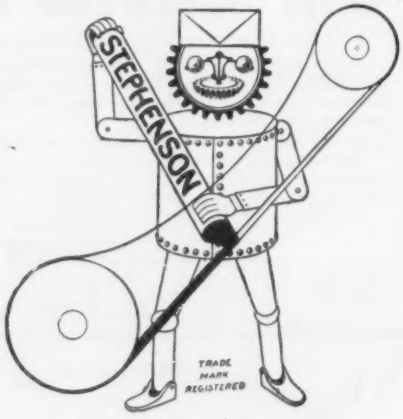
East Pittsburgh, Pa.

Boston Safe Deposit & Trust Bldg. **New York** 165 Broadway **Charlotte** American Bldg.

STEPHENSON

Bar Belt Dressing Prevents Waste of Power and Fuel

Because it stops the belt from slipping and causes it to transmit all the Power without being made so tight as to cause unnecessary friction.



This Registered Trademark Is Your Protection

It appears on each stick of Genuine Stephenson Bar Belt Dressing—the dressing that has held to its uniform quality for 23 years.

This belt dressing surpasses liquid preparations, for there is absolutely no waste in applying it to the belt, and it is put up in sticks or solid form, so that it can be carried about in the tool-box. For these reasons—

1 Pound Lasts as Long as 2 Pounds of Any Liquid or Semi-Liquid Dressing.

There are two brands, Red Label for leather belts, Green Label for rubber, canvas, or balata belts.

Prices, literature and sample sent to any mill on request.

Stephenson Mfg. Co.

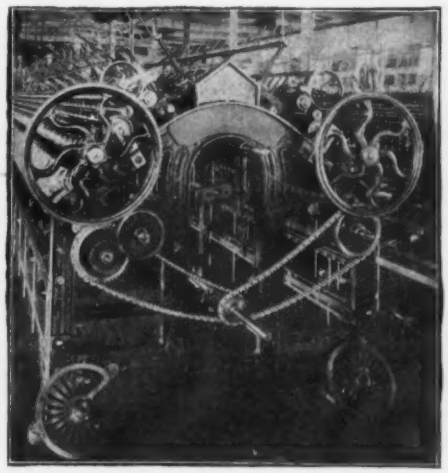
Main Office and Works,
Albany, N. Y.

Improve Your Product

BY USING

Morse Flexible Gearing

This form of transmission is **Durable, Silent. Highly Efficient,** provides a **Positive** speed ratio and runs with a **Minimum** amount of care and attention.



The **MORSE SILENT CHAINS** as shown above have proved our claim that they are the most **Durable** and most **Economical** Form of Transmission that can be installed to run on a **Positive Speed Ratio** from cylinder shaft to twist gears.

Improvement in the yarn and **Reduced** upkeep cost has always followed the installation of these drives.

In one large mill alone we have equipped over 350 frames.

We now have in successful operation drives transmitting an aggregate of over 500,000 H. P. Individual drives running from 1 H. P. to 2000 H. P. each.

Let us figure on some of your power transmission problems.

Our Bulletin No. 9B is particularly interesting.

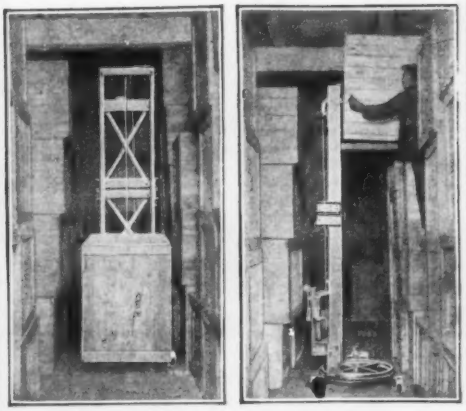
MORSE CHAIN CO.

ITHACA, N. Y.

N. E. Branch, 141 Milk St., Boston

The Traveling Crane

of the



Store House

and

Factory

FOR the stacking and unstacking of all heavy and bulky materials, such as large and heavy boxes, crates, bales, barrels, etc., a flexible, portable hoist of some kind is a necessity.

The Revolvator is just the machine which will suit this purpose. It is most efficient and rapid in operation, and but one or two men are required. The revolving base facilitates its use in narrow aisles and close places. It is mounted on truck wheels and is provided with a locking device which firmly locks it to the floor.

With a Revolvator all available space can be used for storing, and the width of passageways can be greatly reduced. The Revolvator will increase your storage capacity from 50 to 100% with increased speed of handling and decreased labor charges.

Write for Our Bulletin W26
"The New Model "F" Revolvator"

N. Y. Revolving Portable Elevator Co.

349 Garfield Avenue
Jersey City, N. J.

The Textile Fabric Tester

The only machine that gives the bursting strength in pounds per sq. in. by a simple operation

Two Proofs of Quality in Jumbo Mullen Testers

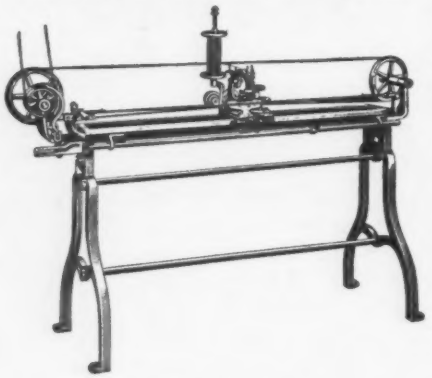
1. The U. S. Government adopted Mullen Testers as the standard for testing paper.
2. The R. R. Freight Classification Committees adopted Mullen Testers as their standard. Every fibre case shipped bears a stamp to show that it will stand "a resistance of ..... *pounds to the sq. in.* (Mullen test.")

The Jumbo Mullen Tester is equally good for testing textile fabrics of all kinds. It is extensively used by hosiery and underwear manufacturers.

Ask for descriptive matter and names of textile mills using the Jumbo Mullen Tester. Send for Catalog No. 85 B.

B. F. Perkins & Son, Inc.
HOLYOKE, MASS.

THIS MACHINE MAKES
PERFECTLY STRAIGHT SEAMS



No. 3 BELT-POWER
RAILWAY SEWING MACHINE

This Machine is like our No. 1 Machine, excepting that it is operated by belt power. This machine is a time and a waste saver, and a great help in various finishing processes.

The cloth is stretched on adju-table points and drawn out smooth to its full width. The sewing head moves across the machine, the cloth remains stationary until the seam is sewed, then the sewing head stops automatically.

In cloth rooms this machine is especially desirable to make long, continuous pieces.

It will sew cotton or woolen goods, thick or thin, wet or dry, and produce perfect work with unskilled labor.

Send for complete catalog of our sewing machines.

DINSMORE MANUFACTURING CO.
SALEM, MASS., U. S. A.

MURPHY
Automatic
Smokeless
FURNACES

Those Textile Mills

equipped with Murphy Furnaces are operating at lower cost than others. They are burning cheaper fuel and getting more power—are saving in many ways.

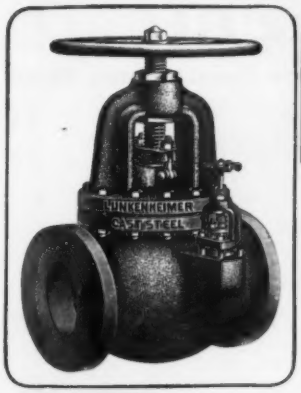
Murphy Furnaces are adaptable to any kind and any size of boiler—are automatic in all their functions—handle efficiently heavy overloads with minimum attention—are practically smokeless.

The Murphy Catalog has started many a power plant toward big savings

Get Your Copy Today

107

Murphy Iron Works
Detroit, Mich.
New York Chicago Buffalo



LUNKENHEIMER CAST STEEL VALVES

are intended for extreme conditions of pressure, superheat and strain. They are exceptionally durable and all parts subjected to wear are renewable. Extra heavy in construction, well made in every detail, carefully tested and inspected before shipment and guaranteed in every respect.

The tensile strength of Lunkenheimer Cast Steel is about 80,000 pounds per square inch, with a safe elastic limit and excellent elongation.

To suit the requirements of various conditions of superheat and high pressure and also to meet the specifications of engineers who may differ as to what is best suited to the purpose, Lunkenheimer Cast Steel valves are made in two combinations as regards the material.

The line includes Globe, Angle, Cross, Gate, Non-return Safety Boiler Stop Valves, etc.

Your local dealer can furnish them; if not, write us.

Write for Catalog 147

THE LUNKENHEIMER CO.

15-34a

"QUALITY"

Largest Manufacturers of High Grade Engineering Specialties in the World

Executive Offices and Factories, CINCINNATI, OHIO, U. S. A.

NEW YORK	CHICAGO	BOSTON	LONDON, S. E.
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SOME SUPERIORITIES OF

"American" Steel Split Pulleys

Flat "A" braced" arms (edge on) give perfect rigidity and least air resistance
Grooved air escape improves belt contact yet the face is not weakened
Rim One thickness of steel Snugly doweled at the joints Combines lightness with durability
Tight clamping hub eliminates key-way and set screw Fits different shafts by use of interchangeable bushings, which are immovably fixed by interlocking device
Inside flange, to which ends of arms are riveted, secures extraordinary strength and trueness
No need to strip the shaft Fit two halves of pulley together, then tighten clamping bolts evenly
Arm rivets do not go through face, with possible protrusion of rivets
Rolled bead on rim, strengthens face at edge.

"American" Pulleys are made in diameters 3 to 60 inches inclusive and are guaranteed to do double belt duty under any conditions not requiring a special pulley.

THE AMERICAN PULLEY COMPANY

OFFICE AND WORKS: PHILADELPHIA, PA.

NEW YORK	CHICAGO
Cor. Grand & Greene Sts.	124 S. Clinton St.

Dealers Everywhere

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WILLIAM FIRTH

558-559 John Hancock Building, 200 Devonshire Street, Boston, Mass.

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ASA LEES & CO., Limited

TEXTILE MACHINERY

OF EVERY DESCRIPTION FOR COTTON, WOOLEN AND WORSTED.

Sole Agents for

JOSEPH STUBBS, Gassing, Winding and Reeling Machinery for Cotton, Worsted and Silk.
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WILLIAM TATHAM & CO., Waste Machinery.
GOODBRAND & CO., Yarn Testing Machinery, Warp Reels.
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Also Agents for

JOSEPH SYKES BROS., Hardened and Tempered Steel Card Clothing for Cotton.
DRONSFIELD BROS. LTD., Emery Wheel Grinders, Emery Fillet and Flat Grinding Machines.
COTTON CORD AND VELVET CUTTING MACHINE CO., Corduroy Cutting Machines, etc.

Manufacturers of Warp Stop Motions — Dustless Card Strippers

BIRCH COTTON FINISHING MACHINERY

Scutchers	Washing	Sewing
Angular Guides	Dyeing	Singeing
Conical Openers	Squeezing	Mangles
Stretchers	Folders	Engines
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THE BIRCH WOOLEN WORSTED FINISHING MACHINERY

Crabbing	Steam Finishing	Cloth Openers
Piece Dyeing	Steam Blowing	Folders
Singeing	Sewing	Squeezing
Tentering	Tacking	Napping

BIRCH BROTHERS

ALBERT BIRCH, Textile Mechanician

SOMERVILLE MACHINE WORKS, SOMERVILLE, MASS.

RELIANCE CLOTH HANGING MACHINE

For shrinking woolen, worsted and cotton goods; drying **oilcloth,** or waterproof cloth, and curing rubberized cloth.

Can be attached to any machine or operated separately

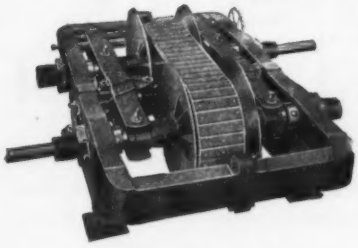
In use by the United States Quartermaster department for shrinking uniform cloth.

Write for catalogue and prices

Reliance Machine Works

Frankford, Phila.

WHILE YOU ARE HESITATING



About installing

"THE REEVES" VARIABLE SPEED TRANSMISSION

others are using it to reduce their manufacturing cost, increase the capacity of their machines and improve their output.

That's what it will do for you every day you use it, and delay means "your loss".

Isn't the fact that there are over 1,000 in use in textile mills and these users sending us duplicate orders daily, proof that it is so valuable they can't afford to be without it?

Catalog T-16 is especially interesting to the Textile man. Write for it.

EASTERN AGENTS:
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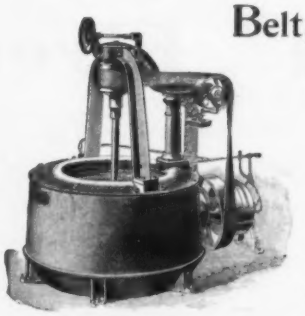
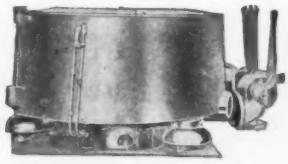


Over Driven Extractor

DYE TUBS AND TANKS

Reel Dyeing and Bleaching Machines Washing Machines

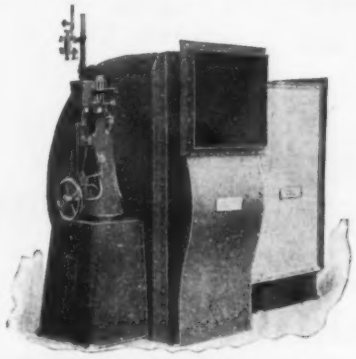


Open Top Extractor

TOLHURST MACHINE WORKS, Troy, N.Y.
FRED H. WHITE, Southern Agent, Realty Bldg., Charlotte, N.C.

INCREASE YOUR TENTER FRAME OUTPUT

With a Fan and Heater Coils



The Apparatus required is very simple.
The results decidedly increase the Output and Profits from each machine.
The New Tariff presents New Problems—Maximum Economy is the best answer
Write us today for special information on this subject.

MASSACHUSETTS FAN CO.
400 Howard St. Watertown, Mass.

Spontaneous Combustion

eliminated by the use of

Breton Oil for Wool

Wool oiled with "Breton" can be stored for months without loss or danger of spontaneous combustion. Cards and spins as well as the day it was oiled. The use of "Breton" oil insures fine, even perfect yarn.

Sold subject to trial and approval

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The "BODDEN" Flyer

For QUALITY OF FINISH
For QUANTITY of PRODUCTION
HAS STOOD THE TEST OF YEARS

Sole Agents for U. S. A.

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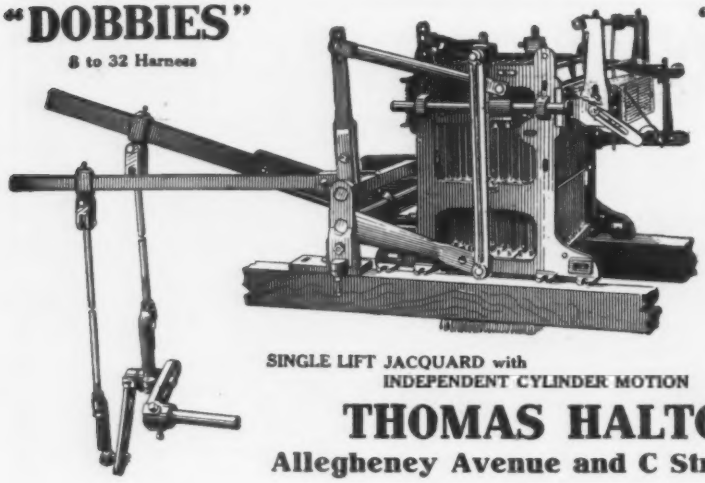
"DOBBIES"

8 to 32 Harness



SINGLE LIFT JACQUARD with
INDEPENDENT CYLINDER MOTION

"JACQUARDS"

208 to 2608 Hooks

ALL TYPES

HARNESS BUILDING

THOMAS HALTON'S SONS

Allegheney Avenue and C Street, Philadelphia

A FOG FILLED DYE HOUSE
MEANS REDUCED PROFITS

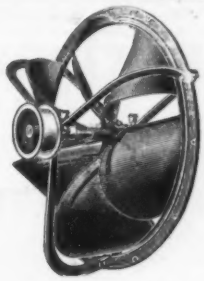
No matter how efficient your management may be in other respects–you lose if your dye-house or bleachery is "foggy"–

A BERRY WHEEL WILL CURE IT

Because it will clear the atmosphere of steam, fog and impurities –and so makes your workrooms more sanitary.—

For Drying and Ventilating Facts, Write To

A. HUN BERRY, 29-33 West First St., Boston



This is the
BERRY WHEEL OR FAN
the most effective agent on the market for drying and for eliminating steam and other impurities in the air.

Badger Quality Products for Textile Mills

We have the finest equipped sheet metal and coppersmithing plant in New England and can give prompt attention to orders of all kinds for

Dye Kettles, Copper Vats, Ventilators, Fire-Proof Windows, Copper Expansion Joints

These new expansion joints in particular should interest every mill engineer as they are made of corrugated copper and cannot leak. They are unequalled for taking up expansion in steam, hot water, or gas pipe lines and they never require packing or attention of any kind.

Let us send you our booklets on our various products. Write now to

The E. B. Badger & Sons Company
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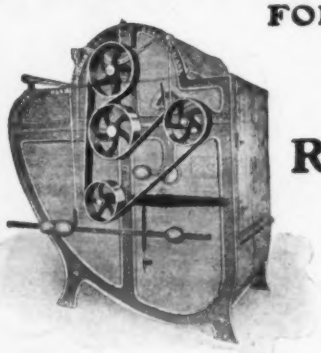
ELIMINATE NOISE

Save the Money reserved for Gears and Rapid Depreciation. Save Power by buying the



Rodney Hunt Silent Belt Drive

Cut shows this Drive on a Rodney Hunt Fulling Mill

RODNEY HUNT MCH. CO.
46 Mill Street - ORANGE, MASS.

WILLIAM FIRTH
Pres.

THE

FRANK B. COMINS
Vice-Pres. and Treas.

American Moistening Company

120 FRANKLIN STREET, BOSTON, MASS.

Received the HIGHEST AWARD on recommendation of the FRANKLIN INSTITUTE for

"SIMPLICITY AND ORIGINALITY OF DESIGN"

Is the largest manufacturer of HUMIDIFIERS in the world. The last twenty years receiving the HIGHEST AWARD in this country and Europe for its AIR-MOISTENING SYSTEM. EIGHT GOLD MEDALS and others.

The Only Perfect System of Air Moistening

Has Been Adopted by the Representative Manufacturers of this Country.
The only System adopted in the Textile Schools. Write for booklet "T" on Humidification.
Legal proceedings will at once be taken against infringers and users of infringements.

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Latest and most approved methods of

POWER TRANSMISSION

by

BELTS, ROPES, OR GEARS

Write for full information

SALEM ELEVATOR WORKS

Salem, Mass.

Elevators Especially Adapted for Textile Mills

Protect Yourself Against Liability Laws

We make a specialty of attaching to Elevators, already in use, Automatic Folding Hatch Doors, Semi and Full Automatic Gates, Automatic Locking and Stopping Devices, Automatic Car Safety Attachments, etc.

Send for Illustrated Catalogue and Estimate

Ten States Have Abolished This

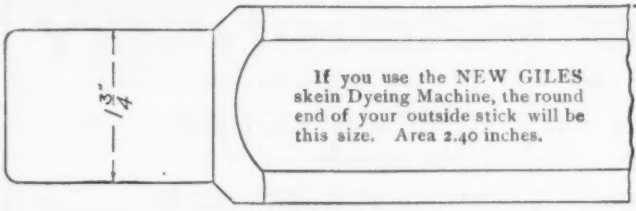
Kansas threw out the public cup in 1910. Other states and cities all over the country have followed suit.

Typhoid, Diphtheria, Pneumonia

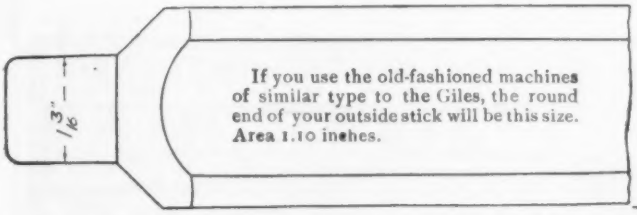
Many are the diseases communicated by the common drinking cup. Sanitary bubbling fountains furnished from one to forty dollars each.

Something new in the combination fountain cooler line in our catalogue which will be sent free on request.

Rundle Spence Manufacturing Co.
Milwaukee, Wis.



If you use the NEW GILES skein Dyeing Machine, the round end of your outside stick will be this size. Area 2.40 inches.



If you use the old-fashioned machines of similar type to the Giles, the round end of your outside stick will be this size. Area 1.10 inches.

The outside stick in the **New Giles** skein dyeing machine is **2½ inches** longer than the inside stick, so that when the ferrule becomes loose or breaks, the stick can be turned down and you have practically a new stick.

This feature is found in the **Giles** machine only, for in the old fashioned type, the inner stick, with its two small round ferrules, is the longer stick, so that when either stick is broken, it is fit only for kindling wood.

We can tell you many more money saving features of the new Giles Machine

WRITE US TODAY

John H. Giles Dyeing Machine Co.

TAUNTON, MASS.

DIETZ

"Watchman's" (Steel Clad) Lantern

(For Signal Oil)

10¼" High 1" Wick 2 Candle Power

DIETZ "WATCHMAN'S (Steel Clad) Lantern is strongly made with flat steel upright guards and skeleton base. It is fitted with a wick scraper by which the char can be removed from the wick without direct access to the flame. Fount is inserted through hinged top and *lantern may be locked to prevent tampering with the flame.* This lantern is recommended where the use of kerosene is forbidden. Holds sufficient oil to burn 24 hours.

Dietz Mill Lanterns Are For Sale By All Dealers in Hardware and Mill Supplies

DIETZ LANTERNS

R. E. DIETZ COMPANY

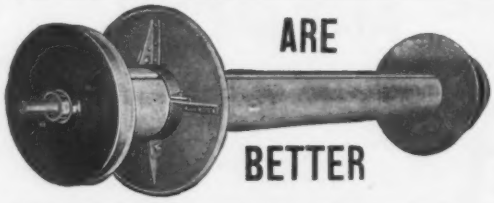
Largest Makers of Lanterns in the World

DIETZ LANTERNS

Greenwich at Laight Street - - New York City

METAL
Bobbins
Spools
Beam
Heads

You can reduce your overhead expense



by using
STAMPED STEEL
Reels—Beams
Bobbins

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NEW ENGLAND BUTT COMPANY
304 PEARL STREET, PROVIDENCE, R. I.
BRAIDING MACHINERY
ALL STYLES AND KINDS FOR FLAT AND ROUND BRAIDS
SOLID SASH AND CURTAIN CORDS
SHOE AND CORSET LACES, BANDING
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THE DOUBLE, BURNISHED OR DIAMOND FINISHED
RIBBED RING WHITINSVILLE MASS.
MADE BY THE WHITINSVILLE SPINNING RING CO.
THE BEST THAT EXPERIENCE CAN PRODUCE, THAT MONEY CAN BUY

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John Heathcote & Son
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Builders of Improved
Cloth Tentering and Drying Machinery
for WOOLENS, WORSTEDS, FELTS, etc.
Built Upright or Horizontal with Low Down Feed
Ventilating Fans a Specialty
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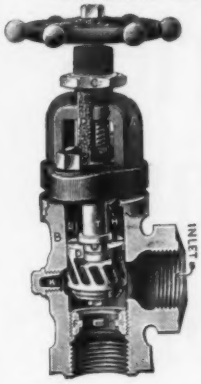
(Especially The White Star Valve)

FIVE POINTS OF EFFICIENCY COMBINED IN THE POWELL "CYCLONE" BLOW-OFF VALVES



1. Body and yoke cast of a close grained iron of high tensile strength.
2. Disc and Seat Ring of Powellium Metal Non-corrosive bronze.
3. Stem, Disc Holder, Fork, Plunger etc., cast of the best Steam Metal Bronze.
4. It is the best Self Cleaning Boiler Valve now on the market.
5. All parts made to gauge and are interchangeable.

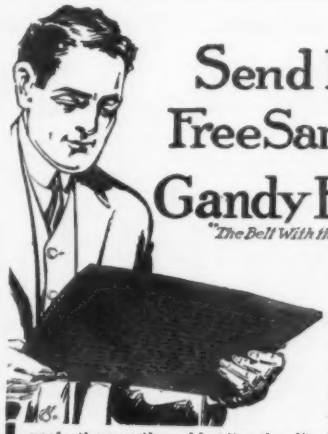
Ask Your Dealer for Powell Valves

or write us

THE WM POWELL CO.

DEPENDABLE ENGINEERING SPECIALTIES

CINCINNATI, O.



Send For A Free Sample Of Gandy Belting

"The Belt With the Green Edge"

Examine it critically.

You'll find that:

1. It is made of the finest grade heavy-weight cotton duck.
2. It's carefully stitched with a heavy thread imbedded in the fabric, making the surface of the belt perfectly smooth, and holding the plies firmly together.
3. It has been specially treated with a secret oil process, which makes it proof against water, steam, grit, dust or dry heat.
4. It has been thoroughly stretched and carefully seasoned before leaving the factory.

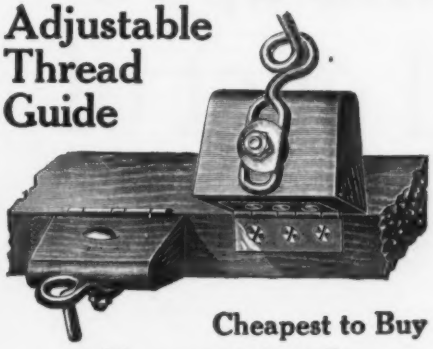
These are but a few of the good points of Gandy Belting, yet it costs but one-third as much as leather and 25 per cent less than rubber.

We have hundreds of letters giving facts about Gandy service under all sorts of conditions. Shall we send you some of them?

THE GANDY BELTING COMPANY
747 W. Pratt St., Baltimore, Md.

New York Office: 88-90 Reade Street

THE PALMER Adjustable Thread Guide



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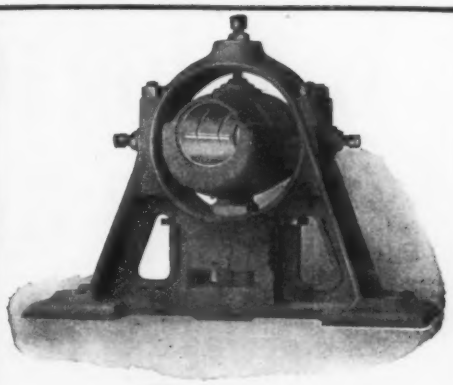

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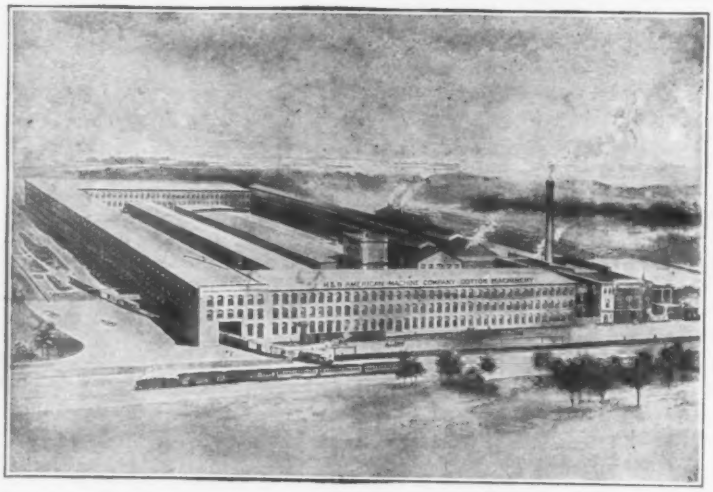
Correspondence

We solicit correspondence on textile subjects. Articles accepted will be paid for. Name and address must always be given, not necessarily for publication. Subscribers are invited to make free use of our Questions and Answers Department; correspondence is strictly confidential.

COTTON MACHINERY



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TEXTILE WORLD RECORD

MARCH, 1914

Monthly Comment.

The Smith Cotton Futures Bill

The bill introduced by Senator Smith of South Carolina to regulate cotton exchanges has been reported favorably to the Senate by the Committee on Agriculture. It forbids the use, not only of the mails, but of any means of public or private communication to exchanges making cotton contracts that do not conform to the law. Following is the text of the bill:

Section 1—That any person, partnership, joint stock company, society, association, or corporation, their managers or officers, engaged in interstate commerce, in making or offering for sale any contract or contracts for the future delivery of cotton, shall specify the grade or grades contracted for in each and every contract; and such grade as is, or grades as are, contracted for shall be according to United States Government standardization.

And it shall be the duty of the Secretary of Agriculture to standardize the grades of "upland" and "Gulf" cottons separately; and such grades as are established for both "upland" and "Gulf" cottons shall not include cotton below good ordinary or above middling fair. It shall be the duty of the Secretary of Agriculture also to standardize according to grades, stains and tinges.

Sec. 2—That in case long staple cottons are bought or sold for future delivery the length of the staple shall be designated in the contract, and the cotton shall be, when delivered, delivered as of the grade and length of staple designated in the contract.

Sec. 3—That the use of the mails, telegraphs, express companies, or any other method of interstate communication, public or private, shall be denied any person, partnership, joint stock company, society, association, corporation, their managers or officers, or employes in making such contract or contracts not conforming to the provisions of this act; and that any employe, agent, owner or officer of the above means of communication prohibited in this section who shall knowingly use such property or agencies of communication, or knowingly allow such property to be used for the transmission of any message relating to such contracts as are prohibited by the terms of this act, shall, upon conviction therefor, be punished for such offense by a fine of not exceeding $1,000 nor less than $500; and the sending of each message in violation of the provisions of this section shall constitute a separate offense.

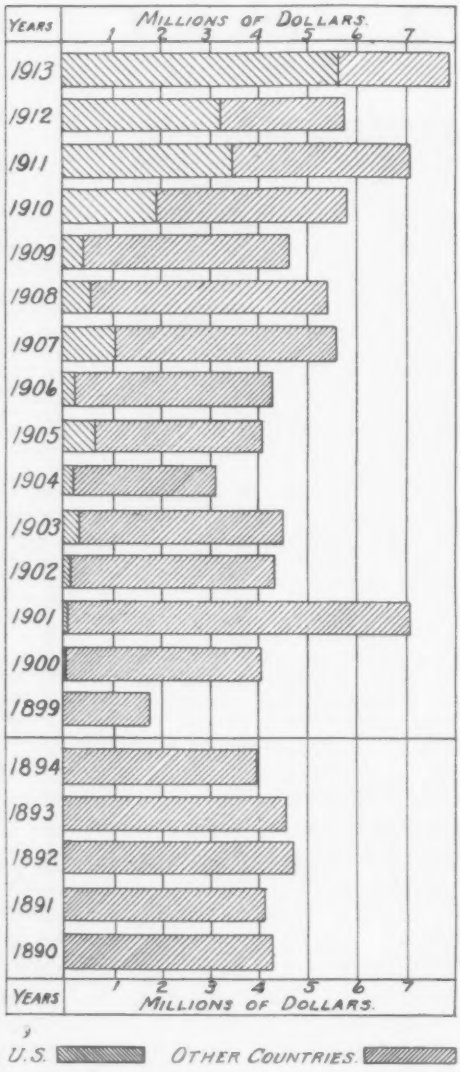
Sec. 4—That any contract or contracts for the future delivery of cotton not having the specifications herein enumerated shall be deemed null and void; and any person, partnership, joint stock company, society, association, or corporation, their managers or officers, who shall make or sell or attempt to sell any contract or contracts for the future delivery of cotton in violation of the provisions of this act shall be deemed, upon conviction, guilty of a misdemeanor and fined any sum not exceeding $5,000 or imprisonment for a term of one year, or by both such fine and imprisonment.

It is reported that the members of the New York Cotton Exchange were thrown into a panic by the favorable report of the Smith bill, and are arranging to send a large delegation to Washington to protest against the passage of the measure. If, however, they are forced to do business under the Smith law they will have only themselves to blame for it. For years they have treated the agitation for a reform of their methods as a joke, and have persistently refused to alter their course. Now, when legislation of some kind is apparently inevitable their protests are not likely to be heeded.

Cotton Goods in the Philippines

The imports of cotton goods into the Philippines for the years ending June 30, 1911, and 1913, were as follows:

	1911	1913
Blankets	$52,110	$78,946
Cloths	7,045,929	7,975,811
Counterpanes and quilts	...	19,479
Embroideries	82,676	108,354
Gum-elastic textiles	26,964	28,975
Handkerchiefs	186,693	181,772
Lamp wicks	6,591	7,520
Piques	32,674	46,635
Plushes, velvets	15,846	23,765
Shoe and corset laces	8,609	11,035
Towels	62,255	50,975
Trimmings, ribbons, braids, etc.	64,765	65,639
Tulles and laces	126,855	106,897
Waste cotton	31,119	25,009
Knit goods	985,034	893,869
Coats, vests and trousers	43,785	33,833
Collars, cuffs and shirts	67,691	112,352
Dresses, skirts and waists	14,060	12,390
Waterproof garments of rubber	30,457	42,493
All other	93,421	160,887
Yarn and thread	1,209,393	1,320,419
All other	118,090	176,583
	$10,305,017	$11,483,638



The share of the United States in this Philippine trade shows a rapid increase, being 40 per cent. in 1911, 45 per cent. in 1912, and 59 per cent. in 1913. The accompanying chart, prepared by the Bureau of Insular Affairs, shows the Philippine imports of cotton goods for the past fourteen years and the yearly proportions supplied by the United States and by other countries.

The Rogers "Misbranding Act"

Congressman John J. Rogers, of Lowell, introduced in the House of Representatives on February 17, a bill (H. R. 13,492) to prevent misbranding of goods of all kinds in interstate commerce. In contrast to the numerous bills of which the Lindquist is a type, the Rogers bill is modeled on the principle of the British Merchandise Acts in that it forbids false, inaccurate or misleading descriptions or statements regarding goods of all kinds. The administrative features follows closely the provisions of the pure food and drug act of June 30, 1906. The following extract from the Rogers bill shows how closely it follows the British Act in defining false trade description:

That the term "misbranded" as used herein, shall include any false, inaccurate, or misleading description, false, inaccurate, or misleading statement or other false, inaccurate, or misleading indication as to number, quantity, measure, gauge, or weight of any articles, as to the place or country in which any articles were manufactured or produced, as to the mode of manufacturing or producing any articles, as to the materials of which any articles are composed, or as to any articles being the subject of an existing patent or copyright, whether such description, statement or other indication is applied to the articles themselves or to any covering, package, or label in which such articles are sold or offered for sale.

The Rogers bill is based on the right principle in that it forbids false description of merchandise without requiring that goods shall bear any definite marks. As the study and discussion of the question proceed it will doubtless be found that details of the bill can be improved, but so far as the fundamental principle of forbidding the false description of goods is concerned, the measure deserves support as a workable remedy for misrepresentation and fraud, and a substitute for such objectionable legislation as the Lindquist bill, which requires under penalty of heavy fine and imprisonment the labeling of goods with definite marks.

—+—

Government Investigation of Foreign Markets

Anyone who has followed the work of the government in the investigation of foreign markets for cotton goods could not fail to recognize the ability and faithfulness of the special agents by whom the inquiries have been made. Beginning with Burrill and Crist in 1905 down to Clark and Odell, who are now in the field, these agents, almost without exception, have rendered services of a high order, reflecting credit on the men and the organization under which they have worked. Before and since the study of foreign markets was begun there has been a pronounced difference of opinion in the trade regarding the value of the work. Some have contended that it is not the proper business of the government to aid manufacturers and merchants to sell goods either at home or abroad. A large number have been indifferent as to whether the government did the work or not. The last named class were mainly those who were not engaged in the export trade. In addition there have been some who were firm in their support of the investigations as a means of promoting the cotton manufacturing industry in this country. A short time ago the Chamber of Commerce, of Greenville, S. C., took occasion on the visit of Special Agent Odell to that place to pass the following resolutions urging that the work be continued:

Resolved, that we, first, wish to thank the Department of Commerce upon the intelligent manner in which they are investigating the conditions of the export trade, especially in the line of cotton manufacturing, and we commend this effort on the part of the Secretary of Commerce, and trust that he will continue the employment of special agents, not only in Europe and the Red Sea parts, but particularly in South America, where we think a good trade for American manufacturers can be developed.

Resolved, second, that the cotton manufacturers of the South deny there is any lack of interest on their part in the work being done by the Department of Commerce in sending out these special agents to the Orient or other foreign countries, and the reports made by these special agents are read with great interest and profit. We would advise, however, that the reports be more promptly printed and distributed gratis to all manufacturers in this country.

As the study of foreign markets for cotton goods has been carried on for nearly ten years, the Department of Commerce should now be in possession of data that would place beyond doubt the question as to whether the work is profitable or not. With this idea in mind we asked the Department for information regarding costs and results, the following being an extract from our letter:

We believe the government has now been engaged for about ten years in the study and development of foreign markets for cotton goods, and I was informed today that you had recently expressed a willingness to extend the work to include foreign markets for woolen and worsted goods. This leads me to ask if you can give me a statement of the cost of government work of this kind, and the known benefits that have resulted from it. I ask this not only for myself, but for the information of the public which bears the cost and may obtain the benefits.

In reply the Department informed us that the appropriations for this service have been from $40,000 to $60,000 a year since 1905, which would amount to a total of say $450,000 for ten years. Of this amount $72,000 has been expended during the past eight years for salaries, traveling expenses and subsistence of the commercial agents engaged on the investigation of markets for cotton goods. In reply to a second letter asking how much should be added to the $72,000 to cover expenses at Washington, the Department informed us that probably not more than $15,000 or $18,000 has been used in the preparation and publication of reports on cotton markets. This brings the amount up to $90,000, to which should be added the proportionate share of the general expenses of the Department at Washington.

such as rent, including depreciation of buildings, heating, salaries, etc. The expense accounts of the government are evidently not kept in such form as to include general charges in the cost of specific branches of work, as the Department gave no definite information on this point. From the figures given, however, the total cost of investigating foreign markets for cotton goods during the past eight years cannot be far from $100,000.

So much for the cost. The results obtained from the work are stated by the Department as follows:

While many instances could be given of actual sales which have resulted from trade opportunities reported by these special agents, one incident will clearly indicate the practical value to the United States of the investigations in question. Commercial Agent W. A. Graham Clark, in his report on the "Swiss Embroidery and Lace Industry" (page 8), noted that there were in 1908 only 616 embroidery machines in the United States, while we imported over $41,000,000 of cotton laces and embroideries during the previous year. Mr. Clark appeared before the Ways and Means Committee on Dec. 11, 1908, at its request, and, during the hearing, took occasion to suggest that the machinery for making embroideries should be admitted free of duty. The Committee acted favorably on this suggestion, and free admission of these machines was granted to Jan. 1, 1911. As a result the importation of embroidery machinery largely increased.

A Philadelphia manufacturer advised Mr. Clark that his firm had started the manufacture of Levers lace entirely as a result of his report, and this firm is now the largest manufacturer of this article in the United States. It is noted that the importations of this class of goods during the calendar year 1913 amounted to a little over $34,200,000. It is further noted that the exports to foreign countries of laces for 1913 amounted to $198,462 and that the exports to Porto Rico in the same year amounted to $455,000.

If a single statement by a trained commercial agent relative to a branch of the cotton textile trade has such important results, it seems fair to assume that the practical money value of these investigations is such as to fully justify the continuation of the service.

Attention might also be invited to the fact that other competing manufacturing nations, such as Great Britain and Germany, find it to their advantage to maintain a similar service.

It is, of course, one of the difficulties with which this Department is constantly confronted to discover the relation between its expenditure for promotive service and the practical result in increased trade that can be attributed to our efforts. The records of the Bureau of Foreign and Domestic Commerce are full of letters reporting specific instances of sales abroad which result from the trade information collected and distributed by the Government.

On the following day the International Lace Co., of New York, submitted this to the Committee:

We are compelled to use machinery built exclusively in England and upon which we have paid 45 per cent. duty.

The difficulty of determining the results of such government work as that under consideration is obvious, and the Department could admit frankly that it had no evidence of actual results without necessarily discrediting the service. In fact such an admission would have left the service in a better light than the labored and mainly irrelevant explanation which it did make. The quoted statement of W. A. Graham Clark on embroideries and laces, and his recommendation that embroidery machinery be admitted free of duty have no bearing on the investigation of foreign markets for cotton goods, even if, as the Department claims, the suggestion as to free machinery had the effect stated. The number of embroidery machines in the United States in 1908, and the value of cotton laces and embroideries imported during the previous year could have been discovered without leaving the Department building, much less traveling in foreign lands. Not only is this recommendation to the Ways and Means Committee in 1908 irrelevant, but the claim that it led to the results named is open to question. Mr. Clark was not alone in pointing out that all lace and embroidery machinery was imported. On Dec. 1, 1908, ten days before his testimony was given, the Scranton (Pa.) Lace Curtain Co. submitted this statement to the Committee:

The machines on which the goods are made are not built in this country, hence must be imported, and a duty of 45 per cent. paid on their cost, and as each machine costs from $4,000 to $6,000 the duty paid on all the machines in this country has been very large.

And on Dec. 14, 1908, the Durbrow & Hearne Mfg. Co. made this broad intimation that embroidery manufacturers should have free machinery:

All machinery for making Swiss embroideries is imported. The duty is 45 per cent. The freight and shipping charges and erection alone would be protection, and in addition, we can make it cheaper than Europe. Mexico admits free of duty machinery used in the manufacture of straw hats.

We give these extracts to set the Department straight by showing that its special agent was not alone in asking the Ways and Means Committee to place lace and embroidery machinery on the free list in 1909. The claim that he was is thus seen to be not only irrelevant, but unfounded and should be eliminated from the consideration of the government's study of foreign markets for cotton goods.

While we are thus left without any conclusive evidence as to the actual results obtained from the government investigation of foreign markets for cotton goods, it does not follow that the work is not profitable or that it is advisable to discontinue it. As the Department states, the determination of results from such work as this is naturally difficult. It is a question to be decided largely by the judgment and not by mathematics. Naturally the Department officials occupy the best position for reaching the right conclusion. Moreover, the Department should make sure that the information collected by the agents is placed before the people who need it. Prompt and free distribution of the reports, as recommended by the Greeneville Chamber of Commerce is all right with certain limitations. It is worse than useless to place information about foreign markets before mill officials who have little or nothing to do with the marketing of the produet. The information should go promptly to the men who are engaged directly or indirectly in marketing the goods, for only in this way can it benefit the industry.

Another difficulty in developing foreign markets for cotton goods has been the indifference of American manufacturers arising from the fact that their production could be readily marketed at home. It is impossible for a cotton manufacturer to enthuse over the prospect of selling goods in Abyssinia or Sierra Leone, when buyers in New York have bought all that his mill can make for months to come. At the same time there are American mills that have made a success of manufacturing for export, and it is probable that other mills will in the future need wider markets than can be found in the United States. For that reason the Department of Commerce should make sure not only that the study of foreign markets shall be carried on with the faithfulness and intelligence that have been in evidence in the past, but that the information shall reach promptly the people who can use it.

Distinguishing Wool and Shoddy

On February 14 we sent the following letter to Carl L. Alsberg, chief of the Bureau of Chemistry, and S. W. Stratton, director of the Bureau of Standards:

Dear Sir:—I am interested in the following extract from an address by Congressman Lindquist of Michigan, before the National Retail Dry Goods Association of February 12:

> "I am informed by the Bureau of Chemistry in Washington and also by the Bureau of Standards that in all cases where shoddy is used to any damaging extent in the construction of goods, that it can be determined whether shoddy exists, so that such a label would enable the buyer to know whether the article he is purchasing for all wool contains shoddy."

I would also like to have you inform me at your earliest convenience whether you have been correctly quoted in the above extract, and if so, what the methods are by which you determine the presence of shoddy in yarn or textile fabrics, and the standard or method by which you determine whether the presence of shoddy in such goods is damaging to the material. I would also like to have you inform me at the same time how you define shoddy as distinguished from wool fibers that are not shoddy. Thanking you in anticipation for a prompt reply.

No reply has been received from the Bureau of Standards, but on February 28, two weeks after the date of our letter, the Bureau of Chemistry replies as follows:

Dear Sir:—Your letter of February 14th, with extract of address by Congressman Lindquist of Michigan, before the National Retail Dry Goods Association, relative to the detection of shoddy in wool fabrics, was received.

Although we have no record of having made such a statement, we may have verbally stated that when shoddy is present in an appreciable quantity in a fabric it can be detected.

If shoddy is present in sufficient quantity to materially affect the value of the goods, its presence, but not always the amount present, can, in most cases be detected by a textile microscopist. The method by which this can be done and the definitions of shoddy and mungo are given in "Technical Testing of Yarns and Textile Fabrics," pages 33 to 38, by J. Herzfeld, and also, in less detail, in "Textile Calculations," pages 88 and 89, by E. A. Posselt.

Trusting this gives you the desired information, I am, Respectfully,
R. L. Emerson,
Asst. Chief.

We presume Asst. Chief Emerson meant "orally" instead of "verbally" when referring to a possible statement regarding the detection of shoddy. This leaves something for Congressman Lindquist to explain. Was the Congressman so anxious to secure anything official to support his bill that he accepted an oral statement by some one in a Government bureau? Is that his idea of the proper method of testing proposed legislation affecting the interests of all the consumers and manufacturers of clothing in this country? Does not Mr. Lindquist think that in view of its importance, such legislation should be backed up by a statement in writing, rather than an oral statement which it is now apparently impossible to verify?

While Asst. Chief Emerson's letter leaves Congressman Lindquist in this dubious position, it also places the Bureau of Chemistry where an explanation is in order. If there is one government department whose officials should realize at the present time the importance of scientific accuracy in dealing with such legislation as the Lindquist bill, it is the Bureau of Chemistry. Ever since the passage of the pure food and drugs act of June 30, 1906, Presidents, cabinet ministers, chiefs of Bureaus, Remsen boards, Congress and the people have been involved in a continual uproar over the meaning and administration of the Act, and even now the chief of the Bureau of Chemistry is head of a recently organized commission to devise some means of straightening out the tangle. That experience should have taught the officials of the Bureau how important it is in a matter of this kind for them to be right when giving advice regarding the purity of commercial products in connection with a bill which provides

That the examination of specimens of articles shall be made in the Bureau of Chemistry of the Department of Agriculture, or under the direction and supervision of such bureau, for the purpose of determining from such examination whether such articles are misbranded within the meaning of this Act.

In spite of the past and present experience with the pure food and drugs act, we find the Assistant Chief of the Bureau of Chemistry, when asked how he defines and distinguishes shoddy and wool in a fabric, referring us airily, not to what the Bureau knows, but to the statements made in two books. If this is the way in which Congressmen and Bureau officials at Washington deal with the proposed legislation, the unfortunate experience with the pure food and drugs act will in all probability be duplicated in the case of textiles and other products. When a man undertakes to advise Congress regarding legislation he should base his advice, not on what someone else says, but on what he knows. And if he does not know he should have the courage to say so. This obligation is all the heavier when a government official gives advice, because there is a certain prestige, a weight of authority which hedges a government official and carries conviction even when evidence of soundness is lacking. Irrespective of whether the books which Assistant Chief Emerson names answer the questions or not, it was the duty of the officials of the Bureau of Chemistry when asked for an opinion on wool and shoddy, to state what they know, and then stop. That would be a faithful performance of official duty.

While the officials of the Bureau of Chemistry are not justified in replying on the mere authority of others in a case of this kind, their position becomes even worse when we examine the statements of the authorities to which Mr. Emerson refers us. Take for example Herzfeld, Technical Testing of Yarns and Textile Fabrics. This book was originally published in German, and translated into English by Charles Salter, the second English edition appearing in 1902. On referring to the pages named by Assistant Chief Emerson we find that Dr. Herzfeld, the author of the book, like our own Bureau of Chemistry, lacking personal knowledge of the facts, gives an extract from Professor Dr. Von Hoehnel's work, the "Lehrbuch der Mikroskopie der Gespinnstfasern", regarding "the chief factors in the detection of artificial wools." Von Hoehnel's work was published in 1887. Not having a copy before us, we cannot state whether the statement was original with Von Hoehnel or not, but here is the sequence:

At least fifteen years ago Herzfeld copied what Von Hoehnel had written twenty-seven years ago. Then Salter over twelve years ago wrote in English what he thought Herzfeld had written in German. Next someone in the United States Bureau of Chemistry accepts in 1913 what Salter wrote, and on the strength of that authority, tells Congressman Lindquist that shoddy can be detected when present in an appreciable quantity in a fabric. And then Congressman Lindquist informs the National Retail Dry Goods Association and the country on the authority of the Bureau of Chemistry that shoddy can be distinguished where "used to any damaging extent." It is difficult to imagine how such a method of creating public opinion could appear more grotesque, but it actually becomes so when we examine Salter's translation of Herzfeld and Von Hoehnel. Here are a few extracts which everyone having any acquaintance with textile processes cannot fail to appreciate:

The "artificial" wools comprise the products elaborated from old or new wool waste or recovered from rags.

Here we find the translator following the German text so literally as to fall into the absurd error of calling shoddy "artificial wool" in English.

The chief characteristic test for artificial wool is the color, which is seldom uniform under the microscope, even pure white, red or green yarns containing fibers of different color.

When a fabric or yarn is of a brownish or blackish grey, and, above all, dirty color, and is composed of threads of all colors, it will for the most part consist of shoddy.

Imagine a man distinguishing shoddy and new wool in a fabric by means of their colors.

The length of fiber is only in individual cases proof of the presence of artificial wool; e. g., in worsteds where the entire length of the fiber can be revealed by carefully testing out the thread, an operation almost impossible of performance in the case of milled cloths.

The authority may be old, but shoddy in worsteds is certainly new.

If a material contains sheep's wool and, mostly, dyed cotton, speckled or twisted together, or contains a whole or semi-cotton warp, a large amount of shoddy will be present. Woolen goods containing vegetable fibers are rarely made from natural wool. Shoddy yarns are, especially in winter goods, found in the under weft at the reverse side of the cloth.

Such is the rubbish that the U. S. Bureau of Chemistry accepts as conclusive when advising Congressmen regarding "pure goods" legislation.

THE NATIONAL ASSOCIATION OF WOOL MANUFACTURERS

The annual meeting of this organization held at Young's Hotel, Boston, February 4, was devoted to the election of officers and the transaction of routine business. The election resulted as follows:

President: John P. Wood, Philadelphia. Vice-Presidents: William M. Wood, Boston; Frederic S. Clark, North Billerica, Mass.; George H. Hodgson, Cleveland; Secretary and Treasurer, Winthrop L. Marvin, 683 Atlantic Ave., Boston. Executive Committee: Andrew Adie, Boston; Chester A. Braman, New York; Frederic C. Dumaine, Boston; Walter Erben, Philadelphia; Frederic C. Fletcher, Boston; Julius Forstmann, Passaic, N. J.; Henry A. Francis, Pittsfield, Mass.; Louis B. Goodall, Sanford, Me.; Edwin Farnham Greene, Boston; Joseph R. Grundy, Philadelphia; Franklin W. Hobbs, Boston; John Hopewell, Boston; Ferdinand Kuhn, Passaic, N. J.; George E. Kunhardt, Lawrence; Charles W. Leonard, Boston; James R. MacColl, Pawtucket, R. I.; William Maxwell, Rockville, Conn.; J. F. Maynard, Utica, N. Y.; Joseph Metcalf, Holyoke, Mass.; Thomas Oakes, Bloomfield, N. J.; William H. Sweatt, Boston.

THE ANGLO-AMERICAN EXPOSITION

In keeping with the objects of the Anglo-American Exposition-to promote the peace of the world and increase international commerce, the American executive committee announces that an international convention of textile manufacturers will be held in July in the convention hall of the exposition in London. The manufacturers of all nations will be invited and the principal object of the convention will be to meet on neutral ground with a serious endeavor to arrange for the international copyright or patent protection of textile designs. Because of the lack of such protection in the past, manufacturers have hesitated about pushing their goods abroad, owing to the fear that their designs, which have cost a great deal to prepare, would be copied by unscrupulous imitators. It is proposed to guard against this by coming to such an agreement as will bring about an appeal to the respective governments for the adoption of a law that the manufacturers themselves shall agree will be fair.

Misrepresentation and Fraud in the Sale of Goods

A Statement by Samuel S. Dale before the Committee on Federal Relations of the Massachusetts Legislature, on the Proposed Resolution Calling on Congress to Pass the Lindquist Bill

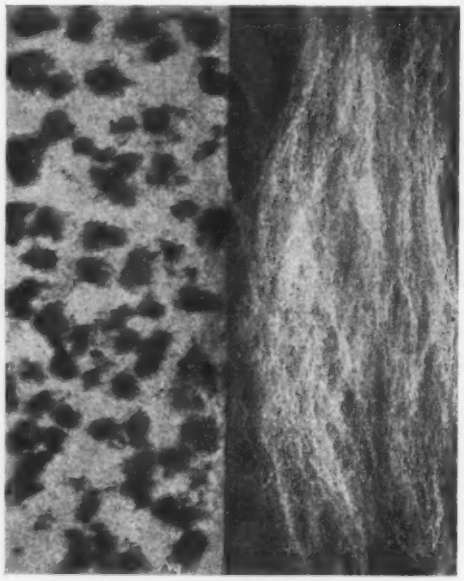
Boston, Mass., Feb. 18, 1914.

The proposed resolution (House No. 1937) requests Congress to pass the Lindquist bill providing for the labeling of certain textiles, boots, shoes and rubber goods to indicate the proportions and quality of the materials of which they are composed. The resolution states that the bill will effect a saving in the cost of such goods to the people of the United States, and thus contribute to a reduction in the high cost of living. I propose to show that the Lindquist bill will do nothing of the kind; that, so far as textiles are concerned, it is impossible of enforcement; and that, even if it could be administered, it could not affect directly the retail or wholesale trading with a State, and would lead to the most absurd results in interstate commerce, confusing instead of enlightening the buyers of goods and causing an increase in the opportunity for fraud and misrepresentation.

After demonstrating the futility and absurdity of the Lindquist bill, I will point out an effective remedy for the misrepresentation and fraud practiced in the sale of goods, and will outline a method of procedure by which that remedy can be applied to sales of all kinds of merchandise, within each State, as well as between the States.

WOOL AND SHODDY

In presenting facts that demonstrate the claims regarding this bill, let us begin with wool goods. The bill divides wool materials into "pure wool" which is defined as "sheep's wool which has not been previously used in the manufacture of any other article or fabric", and "shoddy" which is defined as "a wool fiber which has previously passed through the process of manufacture". The bill is so loosely drawn that it is doubtful how it is intended to classify many by-products of wool, whether as Lindquist "pure wool" or Lindquist "shoddy". If, for example, "shoddy" is only such material as has passed through all of the processes of manufacture, then flocks like this sample (No. 1), which sells for 1 1/4 cents per pound and is wool ground to powder, mere dust, is Lindquist "pure wool". On the other hand, if "pure wool" is only such wool material as has not passed through any of the processes of manufacture, then worsted roving waste like this sample (No. 2), which is fine, high grade, long staple material, selling for 57 cents a pound, is Lindquist "shoddy". Thus



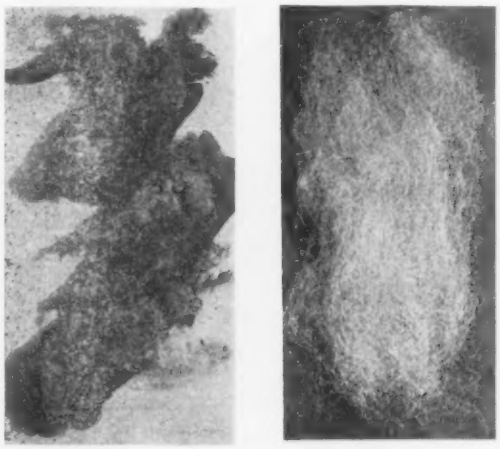
1, Flocks or Wool Dust, 1¼ cents per lb. (at left); 2, Fine Worsted Roving Waste, 57 cents per lb. (at right). Both would bear the same Lindquist label when made into cloth.

either construction of the bill leads to equally absurd conclusions.

Let us consider the bill on the basis of the last supposition. Wool and shoddy have the same physical and chemical structure. The only difference is that shoddy is shorter and sometimes has a less number of projecting scales on the surface of the fiber than has the original wool from which it was derived. There are, however, grades of shoddy which have longer fibers and more numerous scales than are found in many grades of wool; in such cases the material known as shoddy is the more valuable for the manu-

facture of cloth. Here for example is a rag shoddy (No. 3), now selling in Boston at 34 cents a pound, which, as you will readily see, is better material than this sample (No. 4), of shearlings wool, which sells for 27 cents. And yet under the Lindquist bill, goods containing any of the better stock would be branded as "shoddy", while goods made of the inferior material would be labeled "pure wool".

An even more striking illustration of this Lindquist absurdity is found in the case of what is known as "wool clips", of which this is a sample (No. 5), selling at 1 1/2 cents a



5, Dung Locks, 1½ cents per lb. (at left) are Lindquist "pure wool"; 6, Garnetted Worsted Waste, 33 cents per lb. (at right), is Lindquist "shoddy."

pound. These clips consist of about 5 per cent. of very inferior wool imbedded in 95 per cent. of sheep dung. The filthy mass has never "been used in the manufacture of a fabric", and consequently when manufactured into goods the product can be labeled "pure wool" under this Lindquist bill, while goods made of superior stock like the sample just shown you (No. 3, 34 cents), or of worsted roving waste like sample (No. 2, 57 cents), or of this excellent material known as garnetted worsted waste (No. 6), which is sold at 33 cents a pound, must under this absurd bill be labeled "shoddy". Illustrations on this point could be multiplied indefinitely, but they would be merely cumulative.

THE LINDQUIST BILL IS UNWORKABLE

What has been said thus far is based on the assumption that the Lindquist bill is workable and that "pure wool" and "shoddy" as defined by the bill can be distinguished by suitable tests when mixed in a fabric. I propose now to show you that this assumption is entirely unwarranted and that so far as wool goods are concerned the Lindquist bill, which would be ridiculous if it could be enforced, reaches the height of absurdity by being wholly unworkable. If violations of a law cannot be detected the law is a dead letter. It requires no expert knowledge of wool fibers or wool manufacturing, all that is necessary is ordinary intelligence, to understand that Lindquist "shoddy", or wool that "has been previously passed through the process of manufacture", and Lindquist "pure wool" or wool that "has not been previously used in the manufacture of any other article", will both give the same chemical reactions. They are both dissolved by boiling solutions of caustic alkali; both will char when burned leaving a residue and emitting the characteristic odor of burning bone. It is plain that there can be no chemical test to determine how much Lindquist "shoddy" and how much Lindquist "pure wool" is contained in a wool fabric. It is only by a chemical test that the percentages of different materials in a fabric can be determined. So far as this feature is concerned, the Lindquist bill is completely unworkable.

It is evident from the press and individual comments on this bill that the public is under the impression its enactment will enable a purchaser to know how much "shoddy" has been used in the manufacture of wool clothing offered for sale. Not only is this impossible, but Mr. Lindquist knows it to be so. On May 10, 1913, he introduced a so-called "pure textile" bill in the House (H. R. 4981) which could be fairly interpreted as requiring the proportions of Lindquist "shoddy", and "pure wool" to be stated on the label. Something happened between May 10 and December 8, 1913, to enlighten the gentleman from Michigan, for on the last named date he introduced the

bill (H. R. 10,080) which you are now asked to endorse, and which, while retaining the definition of "pure wool" and "shoddy", and providing that fabrics shall be labeled to indicate the percentage of each of these materials, has a new clause hidden at the end of Sec. 16, which reads as follows:

> That in all articles or fabrics composed in part of pure wool and shoddy the percentage of these constituents need not be stated.

On December 18, ten days after the introduction of the revised version of the bill, Mr. Lindquist appeared before the House Committee on Interstate and Foreign Commerce, and gave this explanation for the addition of the new clause just quoted:

> You will note that my bill differs from all others, as I do not require the percentage of these two constituents when used in the manufacture of the same article. The reason of this is because in testing a garment made from part shoddy and part new wool, the result of the test has the same effect upon each of these constituents, so it would be impossible to determine the exact percentage of each. In such cases the label would state that the article contains a portion of both shoddy and pure wool. This can be ascertained by a microscopical test.

Mr. Lindquist had learned something since May 10, 1913, but on December 18, he still had something to learn. He was as wrong regarding the microscope on December 18, as he was regarding chemistry on May 10. The microscope will reveal the number of serrations in a wool fiber, but that does not provide a standard by which Lindquist "shoddy" can be distinguished from Lindquist "pure wool". Some "shoddy" has more of these serrations than some wool, and some wool has more of them than some shoddy. Neither will the length of the fibers serve as a standard, for, as we have seen, some shoddy is longer than some wool and some wool is longer than some shoddy. There is only one way in which to determine beyond question whether a wool fabric contains "shoddy", and that is by an actual inspection of the materials before and during the processes of manufacture.

ADVISED BY GOVERNMENT BUREAUS

Mr. Lindquist tells the House Committee that shoddy can be distinguished from wool by the microscope, and he gave the Retail Dry Goods Association at New York on February 12 the source of his misinformation:

> I am informed by the Bureau of Chemistry in Washington and also by the Bureau of Standards that in all cases where shoddy is used to any damaging extent in the construction of goods, that it can be determined whether shoddy exists, so that such a label would enable the buyer to know whether the article he is purchasing for all wool contains shoddy.

These samples of what Mr. Lindquist calls "shoddy", many of them superior to the samples he would call "pure wool" stamp the quoted opinions of the Bureau of Standards and Bureau of Chemistry as ridiculous. Even more absurd is the qualification, "where shoddy is used to any damaging extent". If it cannot be distinguished in one case, how can it be distinguished in the other? Who is to determine the "damaging extent"? Are we to accept the mere opinion of employes of government bureaus, who have but a superficial and second-hand knowledge of textiles? Are manufacturers and merchants to be fined and imprisoned on the dictum of anyone regarding a matter which in the very nature of things is unknown and unknowable? How does it happen that members of Congress can get such misleading advice from government department? The facts I have stated about wool and shoddy, which you can readily verify and the samples that lie before you prove that the statements of these Bureaus and Mr. Lindquist's assertion that shoddy can be distinguished from new wool when mixed in a fabric are wholly unfounded. Here is the conclusion of one of Germany's leading textile experts, Leo Pinagel, chairman of the Testing Commission for the Textile Industry at Aachen, Germany:

> We have found up to the present time no reliable means to determine by specific observation the presence of small quantities of shoddy. Opinions to the contrary, whether private or official, are wholly without foundation. There is only one reliable method to determine whether shoddy has or has not been used in the manufacture of a fabric, namely, the production of the spinners' lot books and the sworn testimony of the persons who made the record.

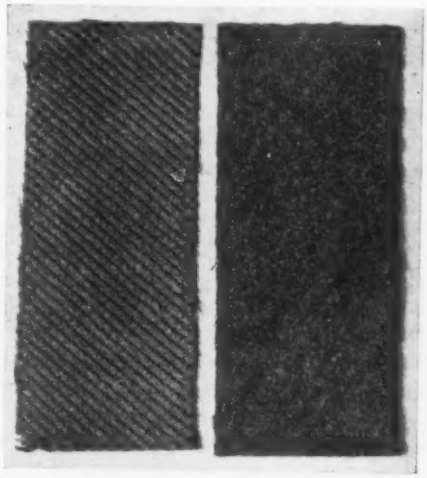
So far as wool and shoddy are concerned,

the Lindquist bill collapses completely. It is not only undesirable but impossible. The only way to make it workable is to provide at enormous expense a vast army of government inspectors to go into the woolen and worsted mills of the country, and watch every stage in the process of manufacture, and another army to watch the partly manufactured products as they move between the thousands of mills and merchants throughout the country. And for what purpose? That wool goods may be labeled according to Lindquist, to show that they contain or do not contain Lindquist "shoddy", or Lindquist "pure wool", wholly arbitrary definitions that in many cases cast discredit on the superior fiber, and represent the inferior material as the better of the two. Even if that were accomplished by an enormous increase in government expenditures, it would, of course, be wholly inoperative so far as foreign woolens and worsteds are concerned. Importers could with impunity label wool goods as "pure wool", even when made principally from inferior shoddy, like this sample (No. 7), selling for 5 cents a pound, for example, in which the fibers are just long enough to have two ends. The government would be powerless to detect the fraud, whereas American manufacturers who made wool cloth from such superior stock as this worsted waste (No. 2, 57 cents), would be forced to have their goods marketed as Lindquist "shoddy".

THE SAME LABEL ON HIGH AND LOW GRADE GOODS

One more illustration of the absurdity of the Lindquist definitions of "shoddy" and "pure wool" and I will turn to other phases of the question. Here is a sample (No. 8) of the highest grade of coat lining that I have been able to find in Boston. It is made with a fine cotton warp and worsted filling, and is composed by weight of 27 per cent. of cotton and 73 per cent. of wool. It is sold by the yard at a price equivalent to $4.48 per pound. Here, on the other hand, is a sample (No. 9) of the cheapest grade of shoddy goods that I have found, being a product of the famous Batley district of Yorkshire, England. It is made with a cotton warp and rag shoddy and cotton mixed filling. A chemical test shows that it is composed, as is the coat lining, of 27 per cent. of cotton and 73 per cent. of wool fiber. It is sold at the rate of 24 cents per pound.

One is a cloth of the highest grade, costing nearly nineteen times as much as the other, which is one of the cheapest wool fabrics made anywhere in the world. Under the



8, Coat Lining, $4.48 per lb. (at left); 9, Low Grade English Cloth, 24 cents per lb. (at right). Both of these fabrics could bear the same Lindquist label, "27 per cent. cotton, 73 per cent. wool," without the possibility of detecting the violation of the law.

Lindquist bill the high grade cloth (No. 8) would be labeled 27 per cent. of cotton and 73 per cent. of "pure wool", and under the same law an importer could label the low grade fabric exactly the same, and by no test, chemical or microscopical, could misbranding be proved. We have touched but the fringe of the Lindquist "shoddy" absurdities, but in the face of what has been shown, I ask the supporters of this bill what their opinion would be of a man who to secure and retain a position as a Lindquist inspector of fibers would swear to the presence of Lindquist "shoddy" in a fabric and subject a manufacturer or merchant to fine or imprisonment or both under this ridiculous measure.

SHODDY A PILLAR OF SOCIETY

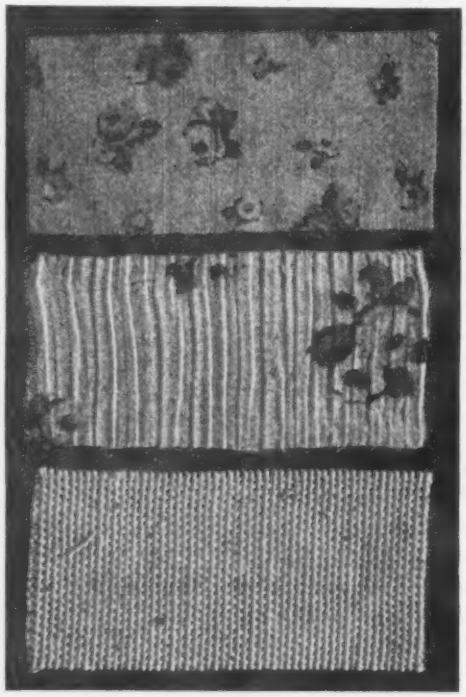
The value of wool fibers for clothing purposes depends, not on whether they have or

have not been previously used in the manufacture of goods, but upon their length, strength and structure, some "shoddy" as we have seen, being much superior to some wool. It is not generally recognized, nevertheless it is a fact, that what is known as "shoddy" is one of the greatest supports of human life in temperate and cold climates. In March, 1902, twelve years ago, when the Grosvenor "shoddy" bill, the prototype of the Lindquist bill, was pending in the House of Representatives at Washington, I calculated from the best statistics available, how much wool cloth each person would have annually if the world's entire wool clip was manufactured into cloth without the admixture of shoddy or other materials and the cloth apportioned equally among the people living outside of the tropics. Each person's share would be 13.2 ounces of cloth, equal to a piece of summer weight cloth 44 inches square, the size of this sample (No. 10). The recollection of the recent cold weather in this vicinity with the thermometer from 10° to 20° below zero F. will aid us to appreciate the value of shoddy as a necessity of life in temperate and cold climates.

COTTON AND THE LINDQUIST BILL

I want now to consider the Lindquist bill as it relates to other textile materials. Take cotton for example, one of the most important of textile materials, produced in vast quantities at a low price. It is a mistake to consider all cotton as cheap. The most expensive textile material I have found is a high grade of cotton. Here for example is a sample of 400s cotton yarn (No. 11), spun by the Fine Spinners' and Doublers' Association, Manchester, England. A pound of it measures 191 miles and would reach from Boston nearly to New York. As you can see from the spinner's memorandum, the Manchester price of this yarn on November 10, 1913, was £4 10s. ($22.05) per pound. This is over four times the present price of the highest grade of raw silk yarn quoted on the New York market.

Here are two samples of dress goods now on sale in the same store and within five minutes' walk of this State House. One of them (No. 12) is a high grade wool challie sold at the rate of $5.05 per pound; the other (No. 13) is a cotton crepe sold at the rate of $7.38 per pound, or $2.33 more per pound than the wool challie. These illustrations show that cotton, while abundant and ordinarily low-priced, yet is capable of being manufactured into very expensive goods. What does the Lindquist bill propose to do to cotton goods.



12, Wool Challie, $5.05 per lb. (top); 13, Cotton Crepe, $7.38 per lb (center); 14, Low Grade Cotton Duck, 23½ cents per lb. (bottom). The Cotton Crepe is more expensive than the Wool Challie. Both the Cotton Crepe ($5.05 per lb.) and the Cotton Duck (23½ cents per lb.) would bear the same label, "pure cotton," under the Lindquist bill.

Why, to label them "pure cotton" regardless of intrinsic value, so long as they contain no other material. Under this remarkable bill the high grade cotton crepe (No. 13) sold at $7.38 per pound, the low grade cotton cloth like this sample (No. 14) now selling in Boston at 23 1/2 cents per pound, and high grade goods made from yarn like this sample (No. 11), which in the form of yarn costs $22.05 per pound, would all be labeled as Lindquist "pure cotton". How much infor-

mation would a label of that kind convey to the prospective purchaser of cotton cloth? And yet the petition for this resolution says:

> The enactment of this legislation will greatly benefit the people of the United States in a great savings that will be made in the purchase of the necessaries of life, such as cotton and woolen clothing, boots and shoes, and in this way contribute towards the reduction in the present high cost of living.

The petitioner may know a lot about boots and shoes, but he must have given a very light touch to his study of wool and cotton or he would not have made any such claim as that.

A REAL REMEDY FOR MISREPRESENTATION AND FRAUD

I could continue indefinitely to point out the absurdities and impossibilities of this Lindquist bill, but what has already been said is enough to show that the bill is impracticable and undesirable, and should be relegated to the waste basket.

It is not my purpose merely to oppose the resolution. I want also to propose a substitute for the ridiculous Lindquist bill, a workable substitute that will prevent misrepresentation and fraud in the sale, not only of textiles, but of all other goods in the United States. It is not denied that there are at the present time many abuses in the sale of goods of all kinds. Goods made of wool mixed with cheap silk waste are sold as "all wool", and detection of the fraud is extremely difficult, for both materials are dissolved in boiling solutions of caustic alkali. Goods made of wool and cotton are sometimes sold by dishonest or ignorant dealers as "all wool", and, while the fraud is easily detected, redress for the damage is slow and difficult. Cotton goods may carry an excessive amount of sizing, and be sold as "cotton". Cotton is sold as linen. Artificial silk passes as silk. These and many other methods of misrepresenting textiles should be stopped. Moreover misrepresentation and fraud is not confined to the textiles and boots and shoes named in the Lindquist bill. The evil extends to every commercial product, not only at retail, but in the wholesale trade as well.

The varied commercial forms of wood, iron, steel, brass, lead, copper, tin, stone, cement, gold, silver, pearls, diamonds, jewelry, coal, bricks, gas, hardware, dyestuffs, chemicals, soap, horses, cattle, dogs, furs, felts, pottery, china, glassware, asphalt, automobiles, wagons, carriages, oils, rubber, leather and textile belting, cordage, ivory, whalebone, blacking, paper, photographic supplies, chairs, tobacco, watches, clocks, cutlery, feathers, fruit, vegetables, food, drugs, glue, gunpowder, hay, straw, ice, water, ink, pianos, paint, varnish, japan, musical instruments, anything and everything we buy; it is necessary only to enumerate them to bring to mind the variegated forms of deceit, misrepresentation and fraud practiced on the buyers, and against which the laws on the statute book now offer no adequate protection. There is a crying need for legislation to protect the purchasing public. Such measures as the Lindquist bill offer no remedy. Even if it were not as ridiculous and unworkable as we have found it to be, it would apply only to a comparatively few articles, to interstate commerce and to trade within the District of Columbia and certain Territories. In intrastate trade where the remedy is needed most it could have but a remote and indirect effect.

THE BRITISH MERCHANDISE MARKS ACT

What the public needs is a law that will reach all commercial products, in all commercial transactions, both within and between the States and Territories. This can be done. I want briefly to state how, and to ask that, if any recommendation is made to Congress, you substitute my plan for the resolution now before you. My suggestion is that you approve the enactment of a general law by Congress forbidding all false description of all goods offered for sale, under penalty of fine and imprisonment, unless the accused can prove that he acted without intent to defraud. For twenty-seven years a law known as the Merchandise Marks Act, based on that principle, has been in force in the United Kingdom, and has proved an effective means of protecting the public. Since its enactment in 1887 it has

been reenacted in most if not all of the British Colonies. The following extract from the original act shows the underlying principle of the Act, which I wish to recommend to you:

Every person who applies any false trade description to goods (or causes it to be done) shall, subject to the provisions of this Act, and unless he proves that he acted without intent to defraud, be guilty of an offense against this Act.

Every person guilty of an offense against this act shall be liable—

(1) On conviction on indictment, to imprisonment, with or without hard labor, for a term not exceeding two years, or to fine, or to both imprisonment and fine; and

(2) On summary conviction to imprisonment, with or without hard labor, for a term not exceeding four months, or to a fine not exceeding twenty pounds, and in case of a second or subsequent conviction to imprisonment, with or without hard labor, for a term not exceeding six months, or to a fine not exceeding fifty pounds.

The expression "trade description" means any description, statement, or other indication, direct or indirect.

(a) As to the number, quantity, measure, gauge, or weight of any goods, or

(b) As to the place or country in which any goods were made or produced, or

(c) As to the mode of manufacturing or producing any goods, or

(d) As to the material of which any goods are composed, or

(e) As to any goods being the subject of an existing patent, privilege, or copyright, and the use of any figures, word, or mark which, according to the custom of the trade, is commonly taken to be an indication of any of the above matters, shall be deemed to be a trade description within the meaning of this Act.

It would be necessary to frame a United States law to suit conditions in this country. My suggestion now applies only to the underlying principle of the law, which forbids false description and does not make impossible, impracticable, useless and misleading requirements for the definite marking of merchandise. While my suggestion refers to the principle of the law, I ask you to consider such details as the extension of the law to cover oral, as well as written descriptions of merchandise. Such an Act as I suggest might wisely be followed by supplementary laws covering special cases, such for example as the Massachusetts act of May 18, 1900, forbidding the sale of dress goods containing more than a specified quantity of arsenic, or the law recently enacted in Great Britain regulating the sale of inflammable cotton goods known as "flannelette", which was made necessary by the many cases of injury and death resulting from "flannelette" clothing catching fire. The weighting of silk has been carried to such an extreme as to be a serious evil. It is for the interest of not only the consumer, but the silk manufacturers as well, to stop the abuse, but up to the present time no reliable method has been found for determining the amount of weighting in silk. For this reason a law which, like the Lindquist bill, requires that silk goods be marked to indicate the amount of weighting would be a dead letter. What is needed is a careful investigation of silk weighting and then if found practicable, the enactment of a special law, regulating the practice. Such laws, however, should be supplementary to the general legislation. Any attempt to reverse the process and deal with special cases first will inevitably result in such grotesque and impossible measures as the one proposed by Congressman Lindquist.

STATE AS WELL AS NATIONAL LAWS REQUIRED

I want also to suggest if you make any recommendation to Congress, that it take the form not only of the approval of the principle of the British law, but also a recommendation of a plan of procedure by which the variations and conflict between State and United States laws, which have proved so serious an evil in the case of the pure food and drugs act of June 30, 1906, may be avoided, and the remedy for fraud or misrepresentation may apply to all kinds of goods in both interstate and intrastate commerce. This can be accomplished by enacting first, the right kind of a law at Washington, and then by the enactment of corresponding laws by the different States. No bill of this kind passed by Congress can reach the retail trade directly, and the retail trade is where fraud and misrepresentation in the sale of goods take their toll from the pockets of the consumer. The buyers at retail would derive slight benefit from a law that, while protecting the wholesale purchaser in interstate commerce, would leave

merchants as free as at present to practice fraud and misrepresesentation of goods when dealing them out by retail. By enacting corresponding State laws the protection to the consumers would be as complete as it now is in the United Kingdom. The efficiency of the protection there is well illustrated by the following item from the London Times of January 31, which reports a case under the Merchandise Marks Act:

Argentine Meat Labelled "Scotch"

At Guildhall yesterday, before Alderman Sir Marcus Samuel, John Gardner, a meat salesman of the Central Meat Market, with many shops in London, was summoned for selling beef under a false trade description. The complaint was that on December 13 last a piece of beef labelled "Scotch," but which was in fact Argentine chilled beef was sold to an inspector of the Board of Agriculture and Fisheries. The facts were not in dispute and only one summons was proceeded with.

For the defense Mr. St. John Hutchinson said that there was absolutely no question of fraud. Mr. Gardner and his manager did all they could to see that everything was properly labelled, but in the rush of business a salesman did undoubtedly place the "Scotch" label in the wrong place.

Sir Marcus Samuel imposed a fine of £20 ($100) and costs.

Bills similar to this Lindquist impossibility have been introduced in Congress for years. They have been backed by a variety of interests. The wool growers have been for years and many of them are still deluded by the idea that the price of wool would be raised by a law forbidding its use a second time unless it was marked "shoddy". The people want protection against fraud and misrepresentation, and accordingly Representatives and Senators, ignorant of or indifferent to the fact that the bills would prove useless, injurious and impossible, have played politics and introduced these measures in order to gain votes. Recently another influence has been at work. Politicians have not only known that they can gain votes by advocating these fake bills for "pure textiles" or "pure anything else," but certain alert merchants have discovered that they can increase their sales and profits by the same process. A textile manufacturer or merchant who ventures to expose the absurdities of the Lindquist bill invites the odium of being in favor of fraud, misrepresentation and the adulteration of goods. On the other hand, the manufacturer or merchant who proclaims his support of the measure finds his reputation for honest dealing and the sale of unadulterated goods enhanced to a degree that is in proportion to the publicity given to his support of the impossible and ridiculous bill. In a speech delivered before the Retail Dry Goods Association in New York on February 12, Congressman Lindquist, the author of the bill, who is himself a clothing manufacturer, is reported to have given in the following words an excellent illustration of the manner in which this species of terrorism on the one hand and fake reputation for "pure goods" on the other are promoted in connection with the agitation for this impossible bill:

The whole purpose of the bill is designed to protect the honest manufacturer, the wholesaler, the retailer and the consumer. Every honest manufacturer should welcome the passage of such a bill, rather than be opposed to it, even though its passage would entail some slight extra expense. It is not an expense that will fall upon the manufacturer, but would ultimately fall upon the consumers of this country, and the consumers of this country would most cheerfully pay for this added protection to them.

I ask this committee to put an end to the farce so far as this State is concerned; to show Congress and the country that the Committee on Federal Relations of the Massachusetts General Court consists in 1914 of men who are not playing cheap politics on a question vitally affecting the welfare of the people; who are ready to defy popular clamor promoted by selfish foresight required for rejecting this petition interests; and who have the intelligence and and framing a substitute that will remedy the evils that now unquestionably exist in the manufacture and sale, not only of textiles, boots and shoes, but of all other merchandise.

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A new weave has recently been patented which is entirely different from any fabric heretofore woven in that the warp and filling threads instead of crossing at their intersections completely pass around each other and interlock.

THE NATIONAL ASSOCIATION OF COTTON MANUFACTURERS

The annual meeting of this association will be held in Paul Revere Hall, Mechanics Bldg., Boston, Mass., on April 29 and 30, this being in accordance with an invitation of the Textile Exhibitors' Association which holds an exhibition of textile machinery during that week. It is expected that Governor Walsh will deliver an address of welcome. In addition to an address by Director of the Census William J. Harris, it is expected that papers will be read on the following subjects:

Care of Boilers in Cotton Mills; Economy in Handling of Material in Cotton Mills; Efficiency and Cost of Doing Business; Electric Power Contracts; Financing Cotton Mills in the United States; Improved Methods in the Handling and Dyeing of Raw Cotton, Yarn and Piece Goods; Methods of Reducing the Fire Hazards of Cotton Pickers; New Cotton Type Standard; Opportunities for African Commerce in American Cotton Textiles; Political Economy in Cotton Manufacturing; Prevention of Decay in Mill Timbers; Railroad Mill Yarn Transportation; Trade Practices in Mill Supplies and Their Regulation; Uses of Compressed Air in Cotton Mills.

The notice of this meeting is accompanied by the following letter soliciting subscriptions from the members of the National Association of Cotton Manufacturers for the support of a Textile Bureau of which John P. Wood, president of the National Association of Wool Manufacturers, is director:

Gentlemen:—The new tariff law has introduced many altered conditions pertaining to manufacturing, among them being its ad valorem basis, which is susceptible to many and grave abuses by undervaluations, and which will require unusual acumen by United States officers, to whom all citizens should give of their skill and ability to assist in the enforcement of the law, especially as the exact determination of certain portions of the act must rest with departmental rulings and decisions of the United States Courts, reaching in some instances to the Supreme Court.

This condition of affairs has been earnestly considered by The National Council of American Cotton Manufacturers, in conjunction with other textile organizations, and a Textile Customs Committee has been appointed to cooperate in the enforcement of the tariff law, and they have established a Textile Bureau for this purpose. A careful estimate of the expenses of representatives in the field has been made, and it considered that this Association should contribute $1,000 toward those expenses for this first year, to be raised by subscription among the members.

This action has been approved by the Board of Government, authorizing the solicitation of contributions toward this amount from members or establishments with which they may be connected.

The Association has been informed that other manufacturing organizations are cooperating in like manner, and it is hoped that the contributions will readily reach this amount. Any surplus will be held to be applied to future expenses of this nature.

To render effective service the Textile Bureau will need the aid and cooperation of the members of its constituent associations, in obtaining information upon which to formulate its work. For this purpose members are requested to promptly communicate particulars of any circumstances coming to their attention which indicate a probability of undervaluation of imported manufactures of wool or cotton; also any questions concerning the interpretation of the existing tariff law and customs regulations respecting woolens or cotton products.

Pending the opening of an office in New York City, correspondence relative to the work of this Bureau can be addressed to the Secretary of this Association or to John P. Wood, Director of the Textile Bureau, 521 North 22nd St., Philadelphia, Pa.

Yours very truly,

Edwin Farnham Greene,
President.

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THE PHILADELPHIA WOOL AND TEXTILE ASSOCIATION

The executive committee of this association held a meeting on February 10 at the offices of Charles J. Webb & Co., Philadelphia. The president, A. C. Bigelow, presided and the following committees were appointed to take charge of the affairs of the association for the coming year:

Wool stock taking: A. C. Bigelow and public accountant, the latter to be chosen later. This committee will compile the stock of wool on hand at the end of the year in a similar manner to that of the Boston Wool Trade Association.

Improvement on fleece wools: Horace Bullock, chairman; Bradford Smith, J. L. Coates, C. A. Boyce.

Membership: J. D. C. Henderson, chairman; C. J. Cole, W. G. Frantz, B. R. Boyer, W. S. McCarthy, Edward Jefferson, E. Wilkinson, Jr., W. T. Fowles, James Akeroyd, William Fry, Q. A. Gillmore.

Transportation: H. J. Kenderdine, chairman; F. A. Lackey, Hollis Wolstenholme, J. L. Coates, G. W. Coffin, Benj. Bullock.

House and entertainment: J. D. C. Henderson, chairman; Fritz Quitner, S. G. Croft, John Fisler, R. Windisch, E. Wilkinson, Jr., S. W. Whan, J. D. Swoyer.

Publicity: A. C. Bigelow, chairman; S. R. Stager.

Arbitration: H. Reifsnyder, chairman; W. H. Folwell, S. G. Croft.

Legislation: Wilson H. Brown, chairman; P. A. Legge, J. H. Seal, I. J. Horstmann.

Standard weights, measures and conditioning: J. W. Levering, chairman; S. S. Fleisher, H. Reifsnyder, C. J. Webb, A. Eavenson.

Storage and insurance: S. W. Whan, chairman; W. D. Oelberman, W. J. Davidson, J. T. Stone, James Bateman.

THE WOOL GOODS MARKET

New York, Feb. 25, 1914.

During the month about all the out of town buyers have been here and a large number have finished their buying and gone home. The others are finishing their selections and when this issue appears the buying on initial orders will be over. There have been a great many goods sold and a number of mills have booked a good business while the large majority have not done a satisfactory business.

It is becoming apparent that some mills will not have enough orders to warrant their running to make the small amount of goods sold. Such lines of goods will have to be cancelled and the business transferred to other mills that have been more fortunate in securing business. The mills of this country can make more goods than are required to clothe the entire population. As the foreign mills are largely increasing their sales here under the lower tariff, it is obvious that our mills will have less work than formerly.

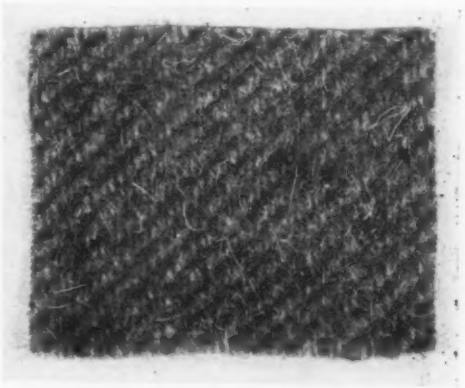
Much of the business done has been at very low prices, so low as not to leave any profit and in some cases it is more than probable that losses will be made. If prices had been based on a living profit, the foreign mills would undoubtedly have secured a still larger percentage of the woolen and worsted orders.

Buyers have expressed themselves as favoring domestic makes of woolens. They know just what they are getting when ordering goods that always give satisfaction, but when it comes to slightly lower prices it makes no difference where the goods come from as long as they promise to be satisfactory.

The continued scarcity of wool, and consequent hardening of prices, has made it imperative to advance prices for fabrics and many advances have been made. It is generally recognized that after the initial orders have all been booked, general advances in prices will be made.

While a great many goods have been sold there are but few lines that stand out as conspicuous sellers. Most lines of fancies in men's wear have had only a moderate sale up to the present time, there however is still a chance for them as many buyers have not yet placed their orders which they will select from the reference samples which they have collected from the various selling agencies.

The recent advices from English manufacturing centers are that they are getting more orders for woolen goods from this country than for many years and that they are still coming. They claim that the new tariff will result in a fairly extensive business



A WOOLEN TWEED

for them on both woolens and worsteds. The foreign successes here are not all on the better grades of goods. The writer has seen 54-inch all cotton worsteds, very sightly and well styled goods, at 37 1/2 cents net that have had a large sale here. The deliveries to the clothing trade show a largely increased percentage of foreign goods over those of a year ago.

Considerable trouble is being experienced with low grade cheap imported serges. There is complaint of their being tender and imperfect and it is reported that many of the orders for them have been cancelled. It is probably impossible to make satisfactory goods in such low grades.

There is considerable criticism among buyers of many fabrics being too light in weight. They are 13 1/2 to 14-ounce goods and certainly not suitable for winter wear. Manufacturers, in order to meet the low prices prevailing, have reduced the cost at the expense of weight and are quite likely

to lose business thereby. Fabrics weighing 15 to 16 ounces are as light as they should be made for winter wear.

One result of the dread of foreign competition is the unusual care and ability shown in styling various fabrics, both in men's and women's wear. The lines show extensive selections and most desirable novelties, many of which have sold freely, especially in women's wear. These last styles are made in some of the most prominent and best equipped mills of the country and deserve special mention, their success is assured by the liberal orders which are being placed for them.

Dress goods mills generally are doing a fairly good business on men's fall and winter goods and many lines are receiving liberal orders on various fabrics. The demand for spring dress goods on repeat orders has kept up well and given the mills considerable work while preparing to run in the fall and winter goods.

Crepes are probably the most sought after fabrics in dress goods. Their sale has been so large that the mills cannot make all the goods required, consequently many orders have been declined by the manufacturers. This has resulted in the sale of large quantities of foreign made goods.

Broadcloths seem to be coming more in favor and are selling better than for several seasons, prices are reduced from 7 1/2 to 15 cents per yard, the reductions being around 20 per cent.

Ladies' coatings have met with good success which has resulted in a large business which was distributed among a large variety of fabrics and styles, with some novelty effects which met with liberal orders.

The jobbers using the finest goods for merchant tailor trade will doubtless buy much more freely of foreign goods. There is a great demand for imported goods for the highest grade trade, regardless of a little difference in price. The word "imported" takes like magic with the majority of the patrons of the best merchant tailors. They seem to think the word is a guarantee of superior goods, whereas it is not. Our fine goods mills are making as good fabrics, styles and colors as can be obtained abroad and thousands of pieces of their production have been sold by the tailors as being imported goods, and they have given perfect satisfaction.

Buyers for the tailor to the trade firms are here and will be the last to leave. They have done a great deal of shopping and selecting of styles which later must stand the comparison of reference samples; it is not likely that they have placed many orders except on special lines. Most of their orders may not be placed for two or three weeks. During the month they placed a number of duplicate orders for spring goods which came two or three weeks later than usual.

In men's wear fancy suitings, worsteds have received much the larger portion of orders booked up to the present time. Many lines have received a fair business and are so well established as sellers that fairly good success is assumed; other lines opened late have yet to make their record.

There are many very creditably styled lines in fancy worsteds which have not yet received sufficient orders to give assurance of success.

Carded wool suitings as a whole are not meeting with pronounced success. While there are many lines not selling to any extent there are a few bright spots where a good business has been done, with good prospects of selling the entire productions.

The overcoats left in the stocks of both the wholesale and retail clothiers are reported to be mostly made of staple goods, the demand having been for mackinaws, balmacans and chinchillas. These fabrics have met with a liberal sale and they have secured about all the business done on overcoatings.

The surprise of the month was the offering at one dollar per yard, regular terms, of a very creditable chinchilla fabric. The goods are being made by a manufacturer that has had considerable experience making such fabrics. It is reported that the line has met with fair success.

The severe winter weather throughout the country during the last two or three weeks

has somewhat helped the sale of stock overcoats, which may have some favorable influence on the sale of overcoatings.

Our wool goods market correspondent sends us a number of samples of imported wool goods, one of which is shown in the illustration. The analysis of these goods resulted as follows:

1. Tweed, all new wool, 15 ozs., 56 ins., $1.02.
   Warp, 18 ends, 3.3 runs.
   Filling, 22 picks, 3.1 runs.
   Actual weight, 13 ozs., 56 ins.
2. Kersey, 32 ozs., 54 ins., $1.24.
   Warp, 39 ends.
   Filling, 32 picks.
   Average count, 1.06 runs.
   Actual weight, 31 ozs., 54 ins.
3. Cloaking, 28 ozs., 56 ins., $1.13.
   Warp, 52 ends, 3.3 runs woolen; 12 ends stitchers, 15s cotton.
   Filling, 43 picks, 2 1/4 runs.
   Actual weight, 24 1/2 ozs., 56 ins.
4. Chinchilla, 22 ozs., 54 ins., 97c.
   Warp, 48 ends, 17s cotton.
   Filling, 52 picks, 1 1/2 runs.
   Actual weight, 22 ozs., 54 ins.

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THE GRADING AND MARKETING OF COTTON

The recent hearings before the Committee on Agriculture brought out a discussion of much interest to the textile trade when the proposed appropriation of $30,580 for investigating the ginning, grading and baling of cotton was under consideration. The first witness was Dr. N. A. Cobb, of the Bureau of Plant Industry, the following being extracts from his statement:

The Chairman—Do you find the cotton merchants buying these to any extent, the local cotton buyers in local communities?

Dr. Cobb—Comparatively few local cotton buyers purchase these grades.

The Chairman—How do you account for their indifference to this proposition?

Dr. Cobb—I do not think that grade plays much of a part in the purchase of cotton as it is carried on today, in the primary market. No doubt you are familiar with the results of the cotton-marketing investigations, which show that the quality of the cotton itself is one of the minor factors in determining the price in the first sale. There are so many other factors that enter into the matter at the present time, unfortunate as it may seem, that the grade of the coton is of comparatively minor importance. I will not say it is of no importance, but within certain rather wide economic limits it is of very minor importance.

The Chairman—So that you think in the case of the average farmer who hauls a bale of cotton to town and sells to a local buyer the selling value is just a guess value with him?

Dr. Cobb—That is very true.

The Chairman—And it is also, I presume, a guess value with the man who buys it; is that not true?

Dr. Cobb—He knows more about it than the farmer knows.

The Chairman—Yes; he knows more than the farmer.

Dr. Cobb—But his knowledge also is often very limited. Our bureau men report that to us continually. I may say that in the cotton standardization project we get this information second hand from the people in the field. We are not in the field in the same way as the farmers' cooperative demonstration or the cotton market officers.

Arthur Marsh, former president of the New York Cotton Exchange, was the next witness:

Gentlemen, you have not any idea of the amount of ignorance there is in the cotton trade. I am not speaking about the cotton producer alone. I am speaking about the cotton manufacturer just as much as I am about the producer and I am also speaking about the cotton merchant. The amount of ignorance is simply appalling.

What I really want to say today, summed up, is that I think the Department of Agriculture has entered upon a course of bringing out the facts and making them generally known, which, if followed up with the spirit which has characterized it so far, is going to be of benefit to the producers of cotton and the manufacturers of cotton in this country to an extent that will be beyond any calculation that you are able to make. I think, if we can get these matters of the uniformity and adequacy of grade cleared up and thoroughly illuminated, that we are going to save millions upon millions of dollars for this country.

Mr. Haugen—According to your statement you have made very small progress in overcoming the ignorance in regard to these matters. I would like to ask Mr. Marsh whether it would not be better, rather than to pursue this policy of education, to provide for standardizing cotton inspection and grading of cotton and thus protect the ignorant and those people who are so reluctant to learn anything about cotton? We have been at this work for ten years or more and here we are now with a statement before this committee that the people are absolutely as ignorant as they ever were—and probably more so.

Mr. Marsh—No, sir; I do not think I said as ignorant as they ever were.

Mr. Haugen—Well, they must be more ignorant if your description of their ignorance is true.

Mr. Marsh—We have got millions to educate. It seems to me that we have just got to the point where the education is beginning to tell. The first steps in any educational campaign produce very small visible results.

Mr. Maguire—I do not wish to be placed in the attitude of reflecting upon the work done by the department, but we are looking more or less for the results. If this information cannot be employed, it is of no value. If we have the remedy, how can we apply it? We have a remedy, but

there is no provision made for its application. It is simply the usual basis of agreement between two parties.

Mr. Marsh—All the forces of commerce are urging it forward.

Mr. Maguire—In applying it?

Mr. Marsh—Certainly; there is the answer to your question.

Mr. Maguire—Well, the fact that you sell by sample in Europe does not prove that, in my opinion. It may have been just as a matter of curiosity.

Mr. Marsh—Dr. Cobb has not told his own story as well as he might. He has not told you, for example, that a very large percentage of all cotton sold in New England today is sold on the basis of Government types. I do not mean by that to say that the cotton is graded out into these nine grades, but I do mean to say that a very large per centage of the crop sold in New England today is on the basis of these standard types of the Government, with allowances for the different qualities of the cotton which are not covered by the Government standard type.

I want to speak a little about this work of ascertaining the manufacturing worth of the grades of cotton. I feel that the work that has been done by the department on that subject is of the utmost importance. I think it is the beginning of an extremely important chapter in the history, not only of cotton, but of the economics of the whole United States. We feel—those of us who are studying this subject—that that matter needs a great deal of further investigation. It needs to be carried beyond the question of the mere difference in waste and in tensile strength of the various grades of cotton. It needs to be carried over into the whole field of the marketing of cotton, cotton goods, and cotton products of every kind.

Now I am going to make a statement, which will seem to many of you extreme, but which I believe from my investigations of the subject to be absolutely true. Blank ignorance on the part of 95 per cent. of the cotton manufacturers of the world as to the spinning worth of the grades of cotton has this year cost the State of Texas alone at least $40,000,000. I believe I am absolutely within bounds when I say that it has cost the State of Texas alone $40,000,000 this year.

Mr. Howell—Who gets the benefit of that?

Mr. Marsh—Nobody has yet "cashed in" the benefit, but the benefit will be gained little by little—first by people who have the nerve to go into Texas today and buy at 6 and 7 cents a pound cotton whose manufacturing worth is 11 or 12 cents per pound. The gain will be obtained also by spinners, particularly in Germany, where there are the most scientific spinners in the world and who are today quietly buying up this very low grade of cotton and getting it into their possession, knowing that they are saving $10, $15 or $20 a bale in the cotton required for the operation of their mills this year.

Mr. Howell—That answers the question. The manufacturers get the benefit of this ignorance, then?

Mr. Marsh—Not all of it. The manufacturer gets most of it, but you would be surprised at the number of cotton merchants here and there who are carrying fifteen or twenty thousand bales of that cotton, knowing perfectly well when the cotton-selling season is over that cotton is going to rise to its true manufacturing worth, or somewhere near it.

In the spring of 1908 I knew cotton to be sold in Memphis, Tenn., at 7 cents a pound under what it was worth to the manufacturer. That is the kind of thing that can be stopped only by investigations of all the facts, in the first place, and then by the diffusion of those facts on the one hand to the cotton producers and on the other hand to the manufacturers of cotton who are in the last resort the people we have to reply on to get into the market as such times and in such seasons to take the cotton at a reasonable price concession.

Mr. Reilly—Do you mean to say that the spinner who buys that cotton is not aware of its value?

Mr. Marsh—The number of spinners in this country who are aware of the value of low-grade cotton is not 10 per cent. of all in the country. Those few who have become aware of the value of that cotton regard it as a trade secret. It is not six weeks ago that a spinner (I will not say from what State because it might be near home) said to me he was not in favor of these investigations of the values of the grades of cotton. I said, "Well, I suppose you are making money out of them." He said, "I am; that is my secret; that is where I am making money."

That man is buying cotton and he does not care whether trade is good or trade is bad, whether the demand for cotton goods is strong or whether it is weak. He buys low-grade cotton, he manufactures it, and he can undersell anybody in his vicinity. A few are getting hold of it in this country. The spinners who generally know it are the German spinners. They furnish the great market for low-grade American cotton, but their capacity is more or less limited, and when they have it all coming their way naturally they are not very keen and enthusiastic buyers. The German spinners consume in the course of a year 1,800,000 to 2,000,000 bales of American cotton. This year the amount of low-grade cotton produced is somewhere from five to six million bales, and the spinners of the United States are not using is as they ought to.

Then there is another point that comes in to affect the situation. The English spinners do not use the low-grade cotton, because they have entered into a trade agreement with their operatives on a piece-work basis which makes their operatives dissatisfied if low-grade cotton is used. It cuts down the amount of output and therefore the operatives are dissatisfied That ought to be overcome. There are English spinners today who are losing 10 to 15 cents per bale on cotton rather than getting into a mess with their operatives. It is a work requiring much investigation and much educational effort, which certainly ought to occupy the highly competent officers of the Department of Agriculture for the next 10 or 15 years before the work is all done, and I am glad the forces have already been brought into operation. The important thing now is to keep the steam up and to put on a little more pressure, and that is what I particularly wanted to say to this committee, and to which you have been kind enough to listen.

Correspondence and Notes

UPON TEXTILE TOPICS AT HOME AND ABROAD

THE MARKETING OF WOOL GOODS IN ENGLAND

BY REGENT

Reports received from America leave no reason to doubt that during recent years business methods in the wool goods market have been growing worse. A correspondent who calls the present conditions "scandalous" and writes indignantly of goods returned or orders cancelled for frivolous reasons and of unjust claims forced at the bayonet point upon American manufacturers, asks for information as to conditions in England. He has heard that in England business is done upon much stricter conditions and he may be interested to be told that English conditions have not been growing worse. On the contrary, they have been braced up appreciably within the last few years to the advantage of all concerned. A period of good trade lasting, with certain intermissions, for ten years has had much to do with this fact and it would be pure wilfulness to shut one's eyes to the influence of good and bad periods of trade upon the general standard of conduct and the ability of sellers to enforce the maintenance of contracts.

Woolen and worsted manufacturers have successfully abolished allowance of imaginary freight. Clothiers situated in London and Glasgow, with factories at some midway point, such as Leeds, had overborne manufacturers with an ingenious argument. They said in effect, "You have to pay freight and if we order the goods to London you pay the railroad $10 a ton. You can deliver to Leeds almost without expense. Therefore, upon all goods ordered by us you allow us the difference in cost between London and Leeds freights, or we cease to do business." Manufacturers have regained the advantage of their own geographical situation.

Until a few years ago great irregularity existed in arrangements as to payment for patterns. Some customers got half-yard lengths free, some got yards free, nobody paid more than half-price and some wriggled out of paying anything at all. It is now a very firm rule with Yorkshire and Scottish manufacturers that they are to be paid full prices for all patterns longer than one-quarter yard. There are also miscellaneous respects in which the situation has been improved. These two are named as tangible all-round gains.

Manufacturers of fine goods have always run their business upon stricter principles of trading than the third-rate concerns. By observing a high standard themselves they have been assisted to exact a high level of conduct in others. Good trade has assisted them to shake free of tricky customers and organization has helped them to force the unwilling customers into line. Three allied bodies, the Fine Cloth Manufacturers' Association of Huddersfield (11 members); the Fine Cloth Manufacturers' Association of the Leeds, Bradford and Halifax Districts (9 members), and the Scottish Woolen Manufacturers' Association (31 members) have together exerted an influence greater than their numerical strength might suggest. The membership includes the most eminent, and many of the largest firms, and the reforms they have been able to effect have been availed of in one degree or another by non-members. In some matters they have had the cooperation of the Huddersfield Woolen Manufacturers and Spinners' Association, which fully represents the low and medium carded woolen trade of that influential district. The manufacturers' associations, formed during the last year or so in response to labor troubles in Dewsbury, Bradford and some other centers, cannot be said to have influenced market methods as yet. Nevertheless, organization aided by good trade has lent some stiffening to dealings at large and undoubtedly closer organizations would have lent more.

The best manufacturers, who play no

tricks npon their own customers, all suffer to some extent from the practices of less scrupulous opponents; including those of manufacturers with whom they do not come into direct competition. There is no means of excluding from business those who consciously attempt to pass short or inferior deliveries. The more reputable firms can do no more than disclaim association with them and this they do with a good will upon all useful occasions. The disclaimers do not effectually prevent them from receiving treatment at the hands of customers which derives some excuse from the attempts made upon customers by the baser sort of manufacturer.

It may promote understanding to outline the course of business as it is done in high-grade goods, beginning with the showing of pattern-ranges. These are shown to the buyers for good merchant houses and the best type of customer orders a length of two or three yards to make traveling samples and one piece or more of each style. A less desirable type of buyer takes a cutting and defers action until he has compared the bit with everything else that is to be seen. The style once being taken up for the season, the maker knows with certainty that the buyer will send repeat orders upon it, basing their size upon the business done by his travelers. No objection is raised to the cancelling of one or two initial selections if notice is given before the goods have been made. The best class of customer seldom changes his mind after ordering. He deals only with manufacturers of proved reliability and little cause of dissension ever arises between them. Such business is gilt-edged and there is not an unlimited quantity to be had. Choice is made with care, quantities are accurately gauged and both sides do their part to make the transaction thoroughly satisfactory; the manufacturer by giving timely and perfect delivery and the merchant by accepting the goods without quibbling. The case is put at its highest.

There is no class of professional adjusters like those complained of by the American Association of Woolen and Worsted Manufacturers. Disputed points are sometimes referred to arbitration, but the arbitrators are not professionals, and, apart from exceptional circumstances, disputes are settled by direct treaty between the parties. There is, however, in London, a class corresponding to the New York spongers, and the operations of these cloth-workers or London shrinkers, as they are called, attracts some current notice. London merchants are falling out of the practice of examining and measuring goods for themselves and are leaving the work to the shrinkers who examine, measure, shrink, roll and deliver the pieces for two cents a yard. Thus the merchant avoids warehouse wages. The shrinker strings the damages and may be suspected of an interest in finding plenty of damages to string. At all events he is a severe critic of woven goods and it cannot injure his position in the eyes of the merchant, his customer, if he succeeds in finding at least as many damages as will cover the cost of his own bill; and all the less if the damages are of so slight a character that the strings can be cut away without fear later. There are manufacturers of high standing who have no compunction at all in cutting off shrinkers' strings on goods sent to be shrunk for their own account and probably the case is not remarkably different with merchants. Dissatisfaction with the ways of the London cloth-workers is causing Yorkshire worsted manufacturers to undertake their own sponging and to offer their goods as fully London shrunk. The extra process is looked on as a nuisance to perform, but it has become a necessary act of self-defence and it is along this line that the manufacturers are working to outflank the spongers. Cloth is sold in this country 37 inches to the yard, with a further deduction of one-quarter yard in ten. One of the rules of the Association of Fine Cloth Manufacturers is that no allowance shall be made for length lost in shrinking if the loss is not in excess of the sum of these deductions. By doing their own shrinking manufacturers keep the facts as to these losses within their own knowledge.

Short length is a prolific source of trouble in some quarters and claims on this account

are found highly annoying by those manufacturers who take care that their only errors shall be in the opposite direction. Differences have sometimes been traced to variation between the type of measuring machine used by the customer, or shrinker, and that used by the manufacturer. Claims for shortage are sometimes forged. Cases are known in which an assistant buyer or other employe in a merchant house has notified entirely non-existent "shorts," diversified by a few advices as to fictitious strings, purely as a profitable way of spending idle time and without cognizance of his superiors. If an investigation is demanded it is of course found that the pieces have been cut or sent abroad. A remedy that has proved effective in one quarter is to refuse all such claims unless the piece is returned to the mill to be remeasured, and general action on these lines, backed by an offer to pay freight if the length proves to have been wrongly stated, would have beneficial results.

Another exasperation to which English manufacturers are constantly exposed is that of claims for "off-shade." No reasonable objection can be made when the effect of faulty color matching is to produce a different tone. A customer who orders blue and white cannot be expected to take black and white. However, in practice trivial deviations, such as do not amount to faults, and do not prevent the one sample from selling for the other, are made the subject matter of claims and these are far too often successful. The trouble hardly arises at all between manufacturer and retailer doing business direct. The tailor is perfectly satisfied with a delivery that is close to sample and good in all respects. The merchant system is responsible for the magnification of minor blemishes and it is found that claims for purely technical and immaterial trifles most abound where merchants are thickest; as in the export trade where the goods have to run the gauntlet of at least two rows of merchants' eyes. The grievance of such claims is acutely felt, but no remedy for them has been invented. All that manufacturers can do is to quote higher to those who are known to specialize in this direction and the more independent makers do this. Members of the Fine Cloth Associations have the power to call a customer's attention to a rule that applies in cases of victimization. A member unfairly treated has the right to report the circumstances to a committee and if he is able to make out his case the guilty party may find it impossible to do business with any member of the Association. Whether the rule has been enforced in all its rigor is unknown, but good results have followed upon a hint that the facts might be reported.

These particulars referring to the fine cloth trade have less bearing upon the cheap carded woolen line. Woolen manufacturers who have been busy night and day for five unbroken years have been strong enough to resist impositions. The wholesale clothiers have had to be thankful to get supplies of the right article at the date at which they wanted it and manufacturers have been able to pick and choose. Now that trade has fallen off it will not be surprising if claims become more plentiful, especially upon goods sent to foreign markets. The foreign trade is more prolific in all kinds of claims than the home market and the worst troubles arise in connection with cheap and medium worsted goods.

It is necessary, however, to pass on to the subject of the sanctity of contract and to some mention of that admirable legal instrument, the Sale of Goods Act, 1893, which has often been held up as the most workmanlike piece of legislation upon the statute books. This Act defines in precise terms the nature of a contract of sale and although it requires that contracts over $50 in value shall be in writing, it is further provided that contracts will be unfavorable if the buyer accepts part of the goods, or gives anything in earnest of the contract or if some note or memorandum can be produced. There is a legal "acceptance" of goods when the buyer does "any act in relation to them which recognizes a preexisting contract of sale." The law is as binding upon one side as the other and makes it the duty of the seller to deliver and of the buyer to accept and pay in accordance with the terms. It regulates the con-

ditions on which a buyer may reject a portion and the terms on which he shall pay for excess deliveries. It defines the position of the "unpaid seller" in respect of lien and of stopping goods in transit. Without extravagance it can be called the business man's charter.

There can be no doubt that woolen trade contracts as a whole have been better observed since the Act came in and the worsted trade depends on contracts for its whole existence. A spinner ordering 1,000 packs of tops from a topmaker has to accept the whole or show cause. The spinner's own sales are virtually all contract sales to deliver so many thousand pounds of yarn at a stated price and against this contract the manufacturer of goods gives "particulars" to enable delivery to be made. The yarn has to be taken up in full and within a given space of time, or otherwise the buyer has to submit to judgment.

Season's contracts for the delivery of so many hundred pieces with particulars to follow are common in the piece goods trade in plain sorts of goods and these contracts are binding upon both hands. It cannot be denied that in bad times there is some shuffling in fulfilment and that expediency leads sellers to show leniency, but a contract is a contract and in England one practice reputed to be common in the New York market are unknown. There is no systematic means of escape. Manufacturers do not accept orders for 1,000 pieces on terms which leave the seller free not to deliver if they find fulfilment inconvenient. Contracts are binding instruments and within a few days of this writing a woolen mill company, Archer Kitchie & Co., Ltd., of Horbury, has been condemned to pay $68,300 damages, and the law costs, for failure to fulfil its bargain to supply police cloth to a London clothing firm.

Conditions have not always been as strict as they now are in the English woolen business and perhaps they are not yet as stringent as in the Lancashire cotton industry where an eye for an eye and a tooth for a tooth are exacted with unflinching relentlessness. Perhaps the nearest parallel to that represented to exist in New York is one which existed for a while among the decadent silk manufacturers in Macclesfield. The survivors in the town do their business upon other lines, but there was a period in which the small manufacturers got no orders at all until the goods had been manufactured. Buyers benevolently advised them as to which styles to make or not to make and they sent for goods as they wanted them. The result was that the silk manufacturers had to give up making the silk handkerchiefs for which nobody would put down orders and to turn to the business of making shirtwaists out of Japanese silks. So far as English experience is a guide, it can be said that absence of binding contracts is incompatible with prosperous business; indeed it is a symptom of ruin.

In the days before high tariffs in America, Bradford had more than a taste of heavy American cancellations and the mixed business which was eventually worked up to replace the lost American orders was of an appreciably steadier character. It may actually be that a volume of business distributed over a large number of styles is inherently steadier than one which runs irresistibly upon very few styles and cloths. Certainly American demand has impressed itself upon English sellers as an extraordinarily erratic quantity. The case is the same with worsteds and cottons. Either there are no orders at all or too many. Whether this is the cause of the looseness of contracts, or whether it is the effect, may be worth inquiry. Assuredly lax observance of obligations will be tenaciously resisted by English sellers to America, if for no better reason than that the persons from whom they have bought will hold them to the bargains entered into in this country.

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The census returns of stock show that, as a result of the drought, sheep figures in Victoria, Australia, declined from 14,000,000 at the end of 1911 to 12,000,000 at the end of 1912. The total losses of grown sheep in Australia for this period are estimated at 10,000,000 head.

COLLAPSE OF A NEW MILL

A large portion of a newly constructed mill, in the Leeds Road district of Bradford (England), collapsed recently under extraordinary circumstances. The building, which is known as the Cashmere Works, is occupied by Joseph Dawson, and was completed about six months ago. It is a six-story ferro concrete building with an unusually large portion of the exterior walls devoted to windows. Across the top of the whole building is a concrete tank holding 3 feet of water. About half-past six in the evening there was a great crash, and one end of the building burst outwards into the street. The water tank was broken, and the whole of the water rushed like a cataract through the building and out into the street, carrying many tons of wool and cashmere with it. The street, which slopes considerably, was converted into a river, so deep that the bales of wool were floated for two hundred yards. Fortunately there were no workpeople at this end of the mill, although one lad named Kelly only just escaped being involved in the collapse. About forty woolcombers were engaged at the other end of the building and escaped unhurt. Had the accident occurred an hour earlier a number of men must have been buried alive.

(From the Yorkshire Observer)
THE NEW WORSTED MILL AT BRADFORD, WRECKED BY THE BURSTING OF A WATER TANK

The damage to the building is estimated at $12,500. Virtually the whole of one end has been torn out by the weight of the wool and the force of the water, while the sides are badly bulged.—Manchester Guardian.

ENGLISH NOTES

By Our Regular Correspondent

Bank presidents and chairmen of manufacturing companies in their annual addresses have had a good deal to say about the reduced American tariff, as being a new and important feature in the commercial situation. Remarks to the effect that the outcome thus far has been less than was expected, coupled with an anticipation of larger business to follow have been the rule. The transactions on American account although individually not large have amounted to a fair sum in bulk. From the Bradford district there have been larger exports of worsted dress goods in the two months of the new tariff than in eleven months immediately preceding its operation. The values of worsted linings and worsted coatings within the two months have been nearly equal to the shipments of the preceding eleven. Carded woolens are beginning to make their weight felt in the consular returns; witness the $114,000 during January from Huddersfield and the $45,000 in the same month from Bradford. The information supplied by these straws is amplified by news of more favorable reports from America as to the prospects before English heavy woolen goods. The January sendings from Bradford of worsted yarn ($65,000), wool tops ($85,000) and wool ($895,000) are regarded as promising symptoms. During December-January there have been shipped from Leeds some $24,000 of woolen rags and $20,000 of shoddy.

A year ago substantially all the textile machinery in this country was fully em-

ployed and the saying that manufacturers could not accept American orders for the prompt delivery of goods, had they been offered, was fully justified. The scene is very much changed now. It cannot be believed that there is more than an 80 per cent. production of worsted and the stocks of plain goods in some mill warehouses are large. In the carded woolen trade short-time day work has replaced full night and day running in some very important mills. Quite one-fifth of the cotton looms are at a stand. The plain linen mills have organized a short-time agreement. The jute trade is bad in bulk and ruinous in regard of profits. There is nothing immoderate in an estimate of a 25 per cent. fall in the rate of production all round. While in some markets the cause is obviously related to dear materials, there are others in which cheapening would be of no immediate assistance. Buyers are limiting themselves strictly to the quantities they have sold and although it would pay—for example—worsted manufacturers to take lower prices for fabrics and keep the machines moving at full speed there are no indications that demand would respond to lower prices. New business is sorely wanted and the mills are in a position to supply quantities promptly this year.

At different times the spinning of ramie yarns for the gas-mantle trade has attracted worsted spinners in Bradford, none of whom has managed to make much of a success of the business. The trouble caused by flying fiber in rooms in which ramie is being spun or frames alongside those spinning worsted, has had discouraging influence and so has the high rate of insuring against fire any premises on which ramie is worked. Again, it has been found unsatisfactory to rely upon the open market for supplies of the ribbons, not solely for the reason that the knots in the bark occur at closer intervals in some parcels than in others. Mantle makers want a guarantee as to the percentage of ash remaining behind after burning off the mantle and this proportion varies widely in material of different origin. In these circumstances one who has made a commercial success of the mantle yarn trade has found it imperative to go direct to China for his supplies and to buy enough ribbons at one time to last for a year. The spinning is done in premises wholly given over to the business and in counts up to 2/30s worsted. This is the finest number to which the modern spinner cares to go, but in past times much finer counts have been spun from the expensive hand-dressed China grass. A sample thirty years old in 2/100s has been seen.

* * *

During the exceptionally dry summer of last year a disturbing defect in worsted goods was noted by a Yorkshire manufacturer who applied unavailingly to the experts for help. The fault was invisible when viewed at right angles, but perceptible when eyed at a narrow angle from list to list of the piece. The surface presented a pimpled appearance and the examiners coined the word "seedy" to express the case. The phenomenon showed only in the looser set cloths and this fact in connection with the dryness of the tops supplied the ultimate explanation. The tops were under-conditioned and the fibers of a piece of the sliver were wild when pulled in the hand and did not fall in the accustomed manner. Accordingly, they produced where spun in the normal course an unusually full and bulky yarn. It was the bends of this yarn protruding from the surface of the loose set cloths that gave rise to the unwonted appearance. Such was the theory advanced by the manufacturer and as it withstood expert examination later there seems to be no reason to doubt the cause.

* * *

In the case just mentioned the tops would assuredly have received the usual conditioning treatment given to them by the comber. The sliver is run over a brass roller which rotates in a water trough set upon the balling machine and the speeds are adjusted to bring the proportion of moisture up to the conventional 18 1/4 per cent. regain. Some of this moisture dried out of the wool in the exceptional climatic conditions obtaining. In an ordinary course of events wool stored in the cool and shady premises used for warehousing can be depended on to gain weight. Thus spinners buying wool of the English clip in a fairly dry season see reason

to pay higher prices at clip-time than at four or five months later. Even if a cent a pound is saved by waiting there is no real gain. Condition is not held responsible for the whole cent, although its influence is perceptible. The choicest and driest lots are the ones to be sold first and by waiting until the fall, the spinner has to rest content with a selection from which the best bargains have been picked.

* * *

If it were possible to go thoroughly into the history of the practice of conditioning textile material it would almost certainly prove that the system began with silk. At any rate the Levantines were reproached for wetting and otherwise falsifying the weight of bales of raw silk two centuries ago. The first conditioning houses in this country were identified with the silk trade and the same seems to be the fact respecting the Continental. The costliness of the material may be assumed to have instilled the desire for precaution and it is indubitable that the demand for the certification of the dry weight came from buyers. The demand that wool material—tops, noils, waste and yarn—should be conditioned arose upon the Continent, where conditioning houses for silk are somewhat numerous. This demand was imposed upon Bradford by Continental customers, of whom some insisted upon conditioning material after its arrival and consequently after the original condition had time to undergo some change. There arose accordingly a desire to have the tests made in England while the goods were still fresh. The Bradford Conditioning House was instituted by the municipality to satisfy this need and the earlier transactions of that institution were confined almost solely to goods for export. The system did not become immediately popular, for there were prejudices as well as malpractices to combat. Conditioning-house certificates please the gainer and displease the loser, so that these institutions in their youth make about as many enemies as friends. Gradually, as Bradford became convinced of the essential justice of the system and the soundness of the methods by which condition was tested the habit of submitting to independent test became established and now the quantity tested in that city far exceeds the quantity of tops exported. Nearly all the wool combed in England is dealt with in a short radius of the Bradford Conditioning House and this concentration of the industry upon one spot has powerfully assisted to make conditioning practicable. The material goes from the comber to the spinner or from the merchant to the railway via the Conditioning House and it is not too much to say that without this local concentration the conditioning of bulk lots could not have become the regular practice that it now is.

* * *

The question of the relative harmfulness of different sorts of sheep-dip is likely to receive some illumination from tests that the Bradford Technical College has been invited to undertake. Numbered parcels of wool, the produce of flocks that have been dipped in different compositions, have been sent by the South African Government. These are to be scoured, combed, spun, woven and dyed at the College and the authorities there are to report upon facts as they find them, without knowing in which compositions the particular parcel has been dipped. Even if the results are not final in all respects they should serve to show whether wool treated with the abhorred soda and sulphur mixture is appreciably affected by the chemical employed.

* * *

Textile societies and other bodies have recently had a plethora of addresses upon the value of academic training, but it is not to be concluded from this fact that textile manufacturers regard technical schooling either as the only, or as the most important, part of equipment for their business. It is still the case that they want character more than any other one thing and characters strong enough to fill the highest positions are not too easy to find. Mr. Fletcher of the Keighley Textile School in espousing the claims of the higher mathematics contends that the application of mathematics to textile industry is more scientific than their application to engineering. An engineering professor has heartened his textile colleagues by a prediction that in a few years

the technically trained textile man will command higher pay than the trained electrical engineer.

FILLING LENO

The accompanying illustrations, Figs. 1, 2 and 3, were omitted from the article on filling leno in the February issue. Thomas Grime, the author of the article and inventor of the device for weaving filling lenos, gives us the following additional explanation:

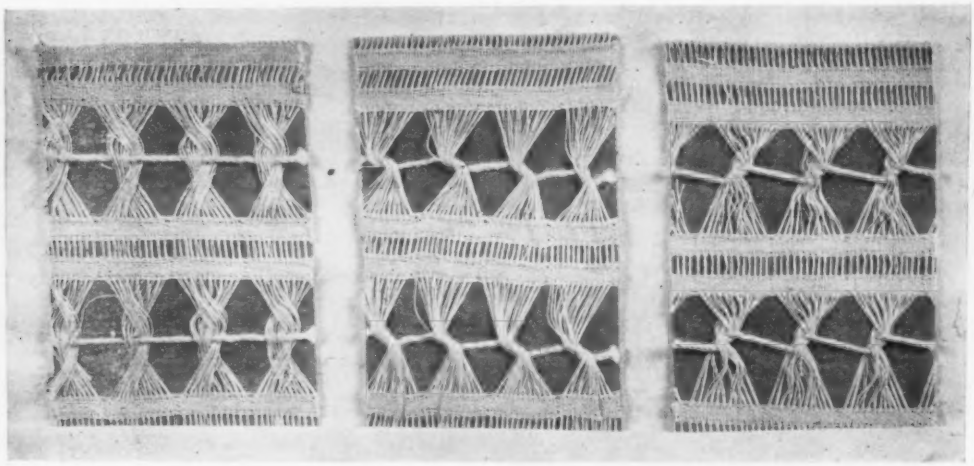

FIG. 1 FIG. 2 FIG. 3

The filling leno motion is a mechanism constructed in such a way as to make it possible to weave different patterns by making the filling picks cross each other. This is quite the reverse of the ordinary leno where the warps cross each other. The warp threads are wound around the filling to get different patterns. This is done with one thread formed in a loop in such a manner as to make a shed, the loop being held in position by the releasable heddles and the reciprocating doup with a bead attached. The first thing is to get the loop in the slackener with the thread straight in the shed and the releasable heddles open ready to receive it. Then it is locked by the dropping down of a harness, after which the motion is reversed, that is, the loop is brought in the shed ready for the filling. When this is done the releasable harness is raised or lowered according to the pattern wanted. After putting all the picks wanted in the pattern the motion is reversed, again taking the loop in the slackener, straightening out the thread in the shed and turning the picks over, or binding them together as the pattern calls for. When the last pick is put in the pattern the harness is raised, releasing the thread in the releasable heddles on the same picks the slackener operates, taking the loop back in the slackener ready for repeating the operation. As the doup is tied to the slackener it operates only when the slackener does, making it a positive motion. Fig. 4 shows where the doup is tied to the slackener, how it operates and pulls the loop in the shed.

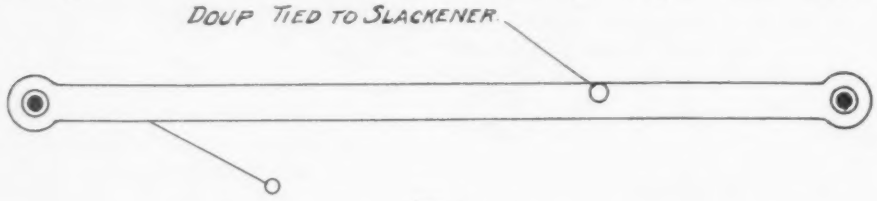

FIG. 4

FAULTS IN WOOL COMBING AND THEIR REMEDIES

BY JOHN BROWN

The object of all the processes through which the wool passes from the time it reaches the combing mill until it becomes a finished top, is to clean and straighten the fibers. Because of the delicate structure of the wool fiber many defects may appear in

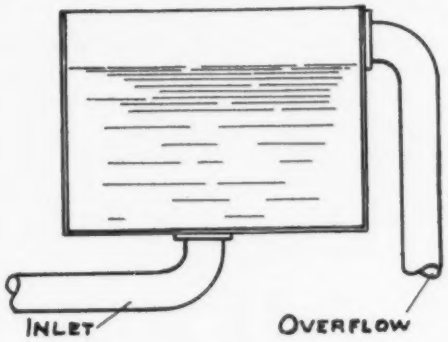

FIG. 1

the finished article unless great care is used in treating it. The main points in wool combing are:

1. To produce a top in which the fibers are as straight and as long as possible.

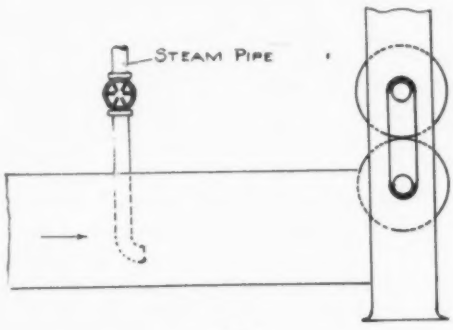

FIG. 2

2. To distribute evenly the long and short fibers, and to turn out a top of good color that is free from neps and slubs, with the smallest percentage of noil.

3. To obtain a large production of top per comb per day.

Different grades of wool require different treatment, sometimes in one process, and at other times in another. Regardless of what directions are given to the combing overseer, he needs quick judgment and adaptability, which only experience can give. An illustration of this is supplied by a mill to which the writer was called. The cardings in passing over the backwash cylinders varied greatly, not only in color, but also in the quality of the carding. On investigation it was found that the liquor in the scouring bowls was made of the same strength and temperature for all classes of wool, and was changed three times a day, viz., 6.30 a. m., 9 a. m., and 1.15 p. m. The result was that the wool from the fresh liquor was clean and free, while the wool scoured at the latter part of the day was almost unworkable. I gave directions that as soon as the stock combing out of the last bowl showed any signs of grease or dirt, the liquor was to be changed. Thermometers were fixed in bowls, and as soon as the temperature dropped steam was turned on. As a result, not only did the stock come up even in color, but the carder found that he worked with considerably less sinkage. The cards ran longer without stripping and grinding.

In another mill engaged in the fine botany trade, it was found that the pieces when dyed and finished were flecky, bits of fiber

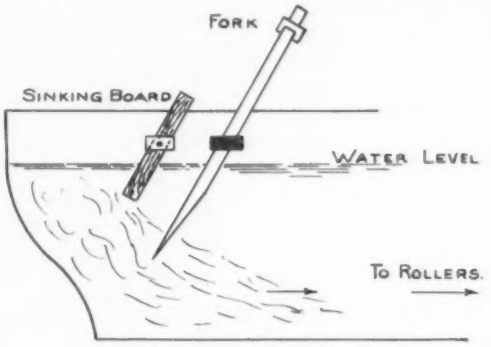

FIG. 3

showing here and there which had not taken the dye properly. When examined thoroughly it was found that by some means fibers of cotton had become mixed with the wool, and would not take the dye. Although the quantity of cotton was very small it was enough to spoil the pieces. No cotton waste was used for cleaning purposes and the cause of the difficulty was a mystery. Even-

tually it was found in the scouring process. For the sake of economy, a new overseer had clothed the squeeze rollers with spare windings from cotton warps instead of wool laps. As soon as the yarn began to fray, small portions of the cotton became mixed with the wool and some of it passed through all the processes and were not discovered until the pieces were dyed and finished. The

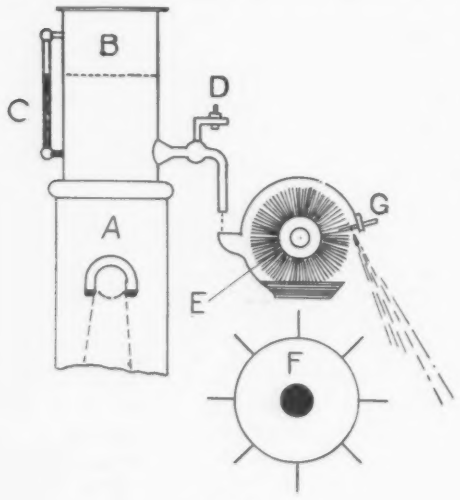

FIG. 4

removal of cotton yarn and the substitution of wool remedied this difficulty.

The two extremes of underscouring and overscouring should be avoided. If the wool is not well scoured it works badly in all the subsequent processes, filling up the card clothing fallers and circles quickly, and producing a heavy looking top. If overscoured and too much of the natural suint taken out, the wool may have a cleaner appearance, but it is liable to be neppy and lacks the brightness and soft handle that a well finished top should have.

There should be a good supply of pure soft water. To augment this all waste steam from combs and backwash cylinders should be trapped, and the distilled water run into a tank for use in the last bowl in scouring, and in the backwash bowls. Although a good cotton seed soap may serve for scouring very low qualities, nothing but the best olive oil soap should be used for fine wools. When cotton seed soap is used in the first and second bowls, a good solution for the last bowl and backwashing is made as follows: Dissolve 120 lbs. of potash in 120 lbs. of water and add slowly 465 lbs. of pure Gallipoli oil, constantly stirring it until thoroughly mixed. Dissolve 5 lbs. of pealash in 50 lbs. of water and add to the other ingredients. Then boil the whole gently for a short time. Let the mixture stand for 7 days before using. When melting the mixture ready for putting into the wash bowl, be careful to use the same proportions of soap and water at each melting.

In scouring all classes of wool it is best before scouring begins to pass the wool through a steeping bowl in order to take away all the free potash. The wool should

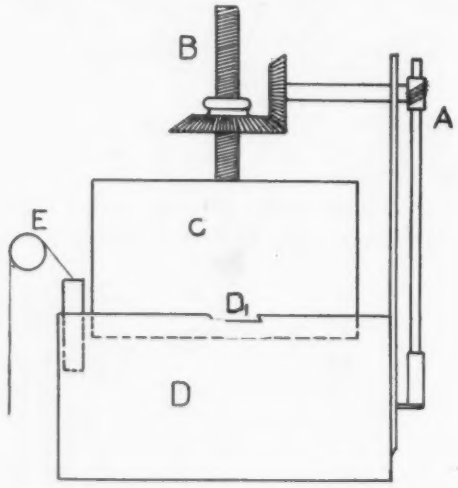

FIG. 5. A, WORM GEAR; B, SHAFT: C, PLUNGER; D, TANK

be steeped in cold or tepid water. The inlet for water should be at the bottom of the bowl. This causes the water to enter gradually and after passing through the wool to overflow at top of bowl. The wool is left in the bowl until the water runs off clear at the overflow, Fig. 1.

Much damage can easily be done to fine, tender wools by working with a liquor that is too hot. The injury becomes greater if the temperature is allowed to drop and

steam then turned on suddenly. To prevent the wool from felting, the steam pipe should go nearly to the bottom of the bowl, and bent at the foot so as to point in the same direction as the wool is traveling, Fig. 2.

No fixed rule can be given for the temperatures of the liquor, but the following directions will serve as a guide:

Greasy wools, first bowl, 120° F. with a liberal allowance of soap. If the stock is very heavy with grease a few pounds of alkali may be added as the liquor runs down. Second bowl, 110° and a smaller quantity of soap. The third or finishing bowl, 105° and just enough soap to make a good lather and to carry the stock through the rollers without any danger of cutting the fibers. For scoured stock the temperature should be from 100° to 110° When swinging forks are used, it is a good plan to have a sinking board fixed at the end of the sweep of the first fork, Fig. 3, about 6 inches below the level of the liquor. This prevents any loose staples from floating on the surface of the liquor. The roller lapping should be kept in good order. As soon as it shows any signs of fraying, strip off the outer layer, and put on a new layer of slightly twisted top. The lapping thus removed can be used for the foundation when the roller is stripped to the core.

In the case of long, heavy wools, which have to pass through a dryer before carding or preparing, the best plan is to let the wool fall on a traveling apron direct to the dryer. The less the stock is handled before it is made into a sliver the better. The beating roller which takes the stock as soon as it leaves the last squeeze rollers should run at a high speed so as to open the wool and assist in the drying. The best form of oiling apparatus at this stage is the spray, Fig. 4. The supply tap is linked to a shipping bar, so that as soon as the rollers stop the supply of oil is cut off.

(To be continued.)

In 1909 the number of mule spindles in Massachusetts, 2,090,211, represented more than two-fifths of the total number of mule spindles in the United States.

THE TESTING OF SOAP

By K. B. Lamb, Ch. E., United States Conditioning and Testing Co.

If you are a purchaser and user of soap have you made any attempt to learn its composition and the proportions of its useful to its useless ingredients? What is the soap you are buying? Do you seek competition in price and quality, or do you purchase the lowest priced, assuming that it is the cheapest soap? The prudent, careful silk manufacturer buys raw silk of a guaranteed size, a minimum boil off and conditioned weight. Having stipulated or specified the things which will insure the quality of the material and manner in which the quantity is to be weighed he is prepared to accept the lowest price offered.

The throwster or dyer who buys soap with no other requirement than that it shall be "olive oil soap" has no means of comparing prices or of judging the relative real values of the brands offered in competition. Water and fatty acids are two constituents of soap which alone may be so adjusted as to overcome a considerable difference in the price.

Lack of accurate information upon samples submitted in competition makes it difficult to judge of their relative merits and assurance of a delivery in agreement with an accepted sample is impossible unless the properties of both are known.

An investigation of some interest has just been completed by the United States Conditioning and Testing Company, 340-44 Hudson St., New York, which shows in a practical manner the great advisability of having all textile soaps used by manufacturers analyzed both before purchase, and as a check on shipments after purchase. This investigation was undertaken in accordance with the company's general policy of taking up questions of interest and importance to the textile trade and to show in an indisputable way the differences existing between the various grades of soap on the market, and the value obtained from each per unit price.

The soaps analyzed were in the majority of cases silk soaps, although there were also some wool soaps among the lot. Twenty-one soaps were obtained, comprising samples

from the majority of soap manufacturers, and samples from silk throwsters who had bought from the above manufacturers. In some cases considerable variance was found between the manufacturer's and throwster's samples of that which was supposed to be the same soap.

The main points brought out by the investigation were:

(1) The differences in the quality of the soaps at present on the market.

(2) The differences in value obtained for money paid.

In many cases a soap selling at 6 1/2 cents per pound is far cheaper than one selling at 5 1/2 cents per pound, as the former has more real soap for each cent paid, the latter being made up of fillers and excess water in addition to the real soap present. The former may also be cheaper to the manufacturer in that the silk is left in a better state than by the cheaper soap, which due to impurities, excess alkali, heavier oils, etc., may cause harshness, incomplete degumming, or imperfections in the subsequent dyeing operations.

The first thing to be considered in a textile soap is the nature of the fatty material used in its manufacture, i. e., the stock. In silk soaps of good grade this is almost universally olive oil "foots." This oil when saponified as soap gives a clear solution and one which is easily washed from the fiber. Olive oil "foots" is the oil obtained from the pulp of the olive by pressure and extraction after the first or higher grade edible oils are removed.

The fundamental process in soap manufacture consists of treating some fatty material with an alkali. The conversion of the fatty material into soap is called saponification. When the fatty acids and alkali are perfectly proportioned no free acid or alkali remains and the soap is said to be neutral.

After the stock is known the value of soap depends on several constituents which may be determined. The most valuable is the amount of fatty acids which the soap contains. This is a determination of the actual real soap in the sample and is of the utmost importance. All other things being equal the value per pound is directly proportional to the percentage of fatty acids present which in turn is a measure of the work the soap will do per pound.

The determination of moisture is also a very important one. Any excess water is paid for at the price of soap, and soaps may contain a large amount of water. The variation between certain limits is not noticeable to any appreciable extent in the physical appearance and a soap may contain as high as 50 per cent. of its weight of water and still be firm enough to maintain its form in bars. The determination of moisture should be made immediately on receiving and weighing the shipment, since soap loses moisture very rapidly in the air and an analysis made long after receipt of the shipment would not be a true statement of the water in the soap as invoiced.

The next determination of importance is that of the free alkali content. This is particularly valuable in the case of silk soaps as these should be as nearly neutral as possible. Excess of free alkali usually denotes careless manufacture and a carefully and well made soap will be very nearly neutral. The alkali is detrimental to silk as it causes harshness of the fiber. Also if an alkaline soap is used for "boiling off" piece goods it very often causes bleeding of the dyestuff. If the ground of the fabric is white or of light colors this will be tinted and the whole piece spoiled.

Next in importance is the amount of unsaponified matter present. This is the oil or any portion of the fatty matter which has not been saponified into soap by the alkali. A certain amount of unsaponified matter is always found as all oils contain certain unsaponifiable constituents, but any considerable amount is very objectionable as it is apt to stick in the goods after rinsing and cause trouble in the dyeing and finishing operations. The character of this unsaponified matter is also of considerable importance.

Matter insoluble in water is also objectionable for the same reason, i. e., its liability to adhere to the goods or fiber and cause later trouble. A good soap dissolves to a perfectly clear solution with very little insoluble matter.

In soluble mineral matter is usually found in very small amounts except in cases where some mineral filler has been added. There are a few other special determinations which can be made for special soaps but the foregoing are the important things to be considered, particularly in a silk soap, and will determine the quality beyond doubt.

The following table of analyses shows the results obtained from the different soaps mentioned in the opening of this article. With the exception of numbers 7, 16, 17 and 18, they were all soaps sold to the trade as silk soaps. All calculations with the exception of moisture are based on the dry weight of the soap. It was impracticable in most cases to make a moisture determination as the soaps were received wrapped in paper covers and in varying conditions of dryness none of which represented a true condition of purchase.

LIST OF ANALYSES

PERCENTAGES CALCULATED ON DRY WEIGHT OF SOAP, EXCEPT MOISTURE

Sample	Moisture	Fatty Acids	Free Alkali as Na Oh	Unsaponified matter	Insoluble matter	Insoluble mineral matter
No. 1	31.2	87.5	Trace	1.20	Trace	Trace
2	28.2	81.1	"	2.10	0.42	0.09
3	29.2	83.1	0 07	1.80	0.02	Trace
4	..	79.2	0.05	1.12	0.02	"
5	..	86.3	0.10	2.90	0.16	"
6	..	69.1	..	2 00	0.49	0.08
7	..	70.0	2.05	2.28	0.52	0.06
8	..	85 5	0.08	2.40	0.13	Trace
9	..	87.1	0.12	1.99	0.05	"
10	..	87.5	0.04	1.12	0.04	"
11	..	85.8	..	1.50	0.11	"
12	..	88.3	0 02	1.98	0.05	"
13	..	81.2	0.06	1.38	0.20	"
14	..	86 5	0.13	1.85	0.20	"
15	..	79.4	0.05	2.23	0.05	"
16	..	81.3	0.10	0.75	0.46	0.15
17	..	86.8	0.13	1.18	0.08	Trace
18	..	84.0	0.10	1.71	0.05	"
19	22.5	88.2	0.05	2.23	..	..
20	26.3	80.0	0,09	1.16	..	..
21	23.5	83.4	0.08	2.13	..	..

REMARKS.—1, French soap, used in all conditioning houses; 2, Soap made from first grade olive oil (white) 11c per pound; 3, 7c per pound; 4, 6½c per pound (50% olive stock, 50% tallow) perfume used; 5, 6½c per pound; 6, 6c per pound; 7, Free alkali purposely added; 8, Perfume present; 9, Probably has tallow in it—6c per pound; 10, 7½c per pound—perfume present; 11, From throwster—supposed to be same as No. 9, 6c per pound; 12, From throwster; 13, From throwster, supposed to be the same as No. 3, 6½c per pound; 14, From throwster, supposed to be the same as No. 3; 15, From throwster, same manufacturer as No. 8, 6½c per pound; 16, Wool soap; 17, Wool soap; 18, Wool soap; 19, Probably has tallow in it.

The above results show considerable variations. The fatty acids varied from 69.1 per cent. to 88.3 per cent., or a difference of 19.2 per cent. No. 4 has 79.2 per cent. fatty acid. or in every pound of dry soap there is 0.792 pounds of fatty acid. This soap is sold at 6 1/2 cents per pound. Taking the moisture at 30 per cent., which is approximately what it was, we get for a pound of dry soap an equivalent price of 9.3 cents. One pound of dry soap is equivalent to 1.43 pounds of wet soap, which at 6 1/2 cents per pound give an equivalent price of 9.3 cents for the dry soap. As a result 0.792 pound of fatty acid costs 9.3 cents or 0.085 pound for each cent. No. 9 has 0.871 pound of fatty acid per pound of dry soap, which under the same conditions as above, and at a price of 6 cents per pound, gives an equivalent price for a pound of dry soap of 8 1/2 cents, or 0.102 pound of fatty acid for each cent. Between 0.085 and 0.102 we have a difference of 16.5 per cent. in value per unit price. These two soaps were about the same in quality of stock, etc., although No. 4 denotes more careful manufacture, as can be seen from the lower free alkali and unsaponified matter content.

The above was taken as an example of how variations in value are found and as an illustration of the method that should be employed in figuring out values, always provided other factors are equal. The final de-

cision must be based on the determinations as a whole.

The free alkali in all cases, except in No. 7, which was a special soap with 2 per cent. free alkali, was found to be within proper limits, although some soaps show a good deal more than others.

The unsaponified matter was found to vary considerably, from 0.75 per cent. in No. 16 to 2.9 per cent. in No. 5. The olive oil soaps of good grade have more unsaponifiable matter than soaps made from animal fats, etc., because olive oil itself contains more unsaponifiable matter. The pure olive oil soap lowest in unsaponified matter was No. 10, with 1.12 per cent. This is a high grade soap in every way, made of high grade "foots" and selling at 7 1/2 cents per pound.

The amount of insoluble matter also varied considerably from a trace in No. 1 to 0.52 per cent. in No. 7. In Nos. 2, 6, 7 and 16 it was higher than it should have been with careful manufacture.

Insoluble mineral matter except in a few cases was found only in traces.

The results of the above twenty-one analyses probably fail to show the complete range of qualities of soaps now being furnished the silk trade. The manufacturers, who were very willing in their cooperation and fully informed of the purpose of the investigation, probably did not submit their competition grades, but their higher grades. The throwsters and dyers assisting were reliable, well established firms, who probably do not purchase any of the lowest, cheapest grade on the market. Throwsters using the lowest grades would hardly wish to submit them.

It is safe to assume there are soaps in use which, if added to the list, would increase the range of values especially of the less desirable properties. This question immediately arises: If the possible range of variation shown in these results represent the medium and high grade soaps offered to the silk industry, will it pay the silk throwster and dyer to test the soaps he purchases or is considering for purchase?

Considered alone from the money saving point of view, tests for moisture, fatty acids and possibly unsaponified matter would easily justify their cost unless the soap was purchased in small quantities, a very uneconomical policy even for a small consumer. Each change of one per cent. in the amount of water or fatty acids means a change of one per cent. in the value of the soap, because the quantity of real soap in any consignment decreases directly as the contained water increases and increases as the fatty acids increase.

If a ton (2,000 pounds) of soap at 6 cents per pound were purchased with an understanding that it should contain not to exceed 30 per cent. moisture and upon delivery was found to contain 40 per cent. moisture, the purchaser would receive 1,200 pounds per ton of dry soap instead of 1,400 pounds per ton dry soap as called for by the contract. His invoice should therefore be adjusted in the ratio 1,200 to 1,400 or 6 to 7. That is, instead of paying $120.00 for the shipment, he should pay 6/7 of $120.00 or $102.86, a saving of $17.14. The cost of the test would be about $1.50. Therefore, if the moisture content of the ton of 6-cent soap exceeded the agreed content by 1 per cent., it would pay the cost of the test.

Considering the question from the more important point of view, the testing of soap is essential for the protection of the customer and the guarantee of the quality of the product. The throwster or dyer who wishes to build his business on a firm basis and secure continuous patronage from reliable manufacturers must be in a position to guarantee the safe and careful handling of the valuable material entrusted to him. He should assure himself that the materials he is using will not injure the goods, nor leave them in a condition to cause unsatisfactory or damaging results in subsequent operations. He is justified in attempting to secure materials of the proper quality at the lowest price, but in the case of soaps and oils he cannot be certain of either the true value or the quality without careful tests of the material. The systematic testing of all mill supplies used in considerable quantity will produce a saving far in excess of the cost, just as the conditioning and testing of silk is producing substantial returns to the manufactures applying it continuously.

A DEVICE FOR WET SPINNING AND TWISTING

The illustration shows an improved device for wet spinning and twisting which has recently been patented in this country and is described as follows: In wet twisting difficulty has been experienced on account of the spotting or discoloration of the thread. This has been due to several causes. In the first place the thread sliver in running from the water trough has carried an excess of water which has spattered the adjacent parts of the frame, causing an increase in the gathering of dirt adjacent to the run of the thread, and also wetting the floor as well as spattering the twisted thread as it is wound. Aside from this general spattering there is the further difficulty which has arisen from the relation of the feed rolls to the water trough. When these rolls had been located in front of the water trough, as has been the usual practice, the thread has been badly spotted on account of the forming of verdigris on the rolls where they have been of brass, and on account of the collection of oil, dust and other dirt both from the air and from the water trough When the rolls have been located behind the trough, the thread has been discolored by the entwining of that sentiment which unavoidably gathers in the trough by the running back of the twist into the trough. This running back of the twist into the trough caused further difficulties because the twisted thread failed to absorb the water as rapidly so as to become uniformly moistened, as did the untwisted sliver.

The improved device is designed to overcome these difficulties. The feed rolls are placed at the rear of the water trough and means are provided for stripping the water from the thread and also for preventing the back twist of the thread from entering the trough.

FIG. 2

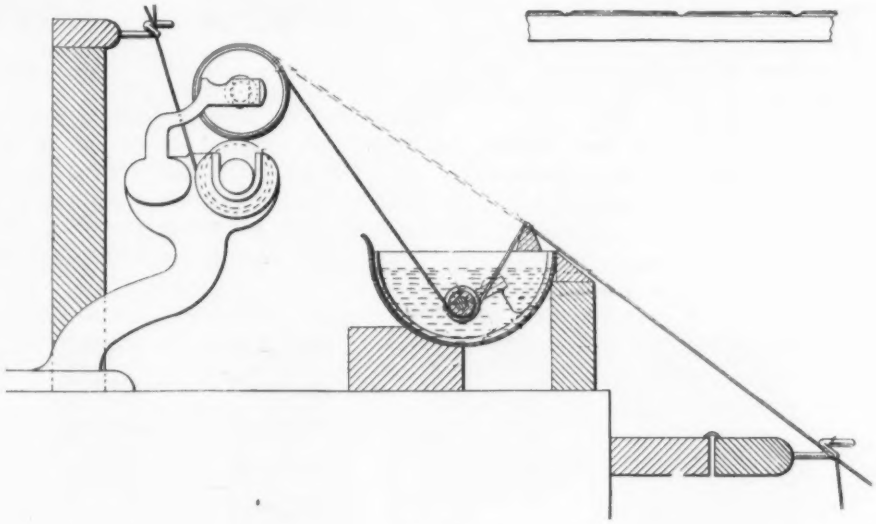

FIG. 1.

Fig. 1 is a side elevation partly in section of parts of a twisting frame showing the device. Fig. 2 is a side elevation of the roll over which the thread runs in leaving the trough.

The tension feed rolls are supported in a bracket to feed the thread to the water trough. The rolls draw the thread from spools through the guide eye. The trough is suitably supported on the bed and side support.

Within the trough is a submerged glass tube extending lengthwise of the trough and carried by suitable brackets. At the

top of the trough and just inside of its outer edge is a guide rail of porcelain of an inverted V-shape in cross section, and having a series of spaced notches along its upper edge. These notches provide guides for the thread which strip the water from the thread as it arises from the trough and allows the water to run back within the trough. The notches also form checks for any back twist which may work up in the thread from the twisters to which the thread passes through a guide eye.

The thread is drawn from the spools through the eye under and over tension rolls; then passing down it enters the water, passing under the glass rod, and emerges from the water and passes through one of the notches on the rail, thence through the guide eye to the spinning ring.

A guiding support for the thread is mounted on the side supports to prevent the thread from becoming engaged with the sharp edges of the trough or the support. The tension rolls which are mounted at the rear of the water trough are kept dry and will not collect oil or dirt from the trough or from verdigris. The thread is thus kept clean and unspotted.

Should the thread break while under tension it may be spliced while still dry. By leading the thread directly from the feed roll to the rail, as shown by the dotted line in Fig. 1, dry twisting may be accomplished on this machine.

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A HAND BOOK OF WEAVES

By G. H. OELSNER, Director of the Weaving School at Werdau.

Translated and Revised by Samuel S. Dale

This Series began in July, 1911

The overcoating cloth known as double satin, president and Eskimo cloth, is woven with a broken 3 up 1 down twill or a 5-leaf warp satin on both face and back. The two weaves are stitched tightly, but so carefully and regularly that the smoothness of the face is not affected. A stitcher with a riser at both right and left is inserted at each face pick. Figs. 1439 to 1453 show examples of these weaves. Figs. 1452 and 1453 are better adapted for goods of lighter weight, on account of the greater firmness resulting from the plain back with which they are woven.

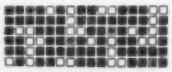


FIG. 1454

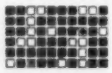


FIG. 1455

FIG. 1456

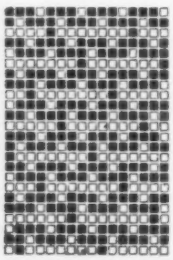


FIG. 1457

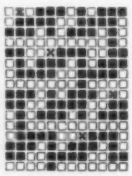


FIG. 1458

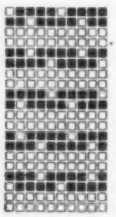


FIG. 1459

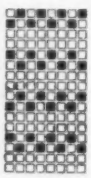


FIG. 1460

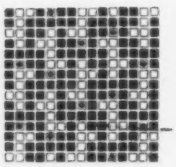


FIG. 1461

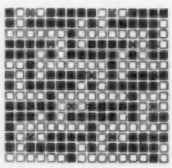


FIG. 1462

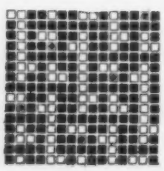
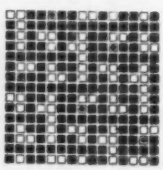


FIG. 1463



(Copyright, 1914, by Samuel S. Dale.)

face 1 back. The filling in Fig. 1439 is set 1 face 1 back; in Fig. 1441, 3 face 1 back; in the others, 2 face 1 back.

The warp of these fabrics is sometimes set 3 or 4 face to 1 back, as shown at Figs. 1454 and 1455, for the purpose of increasing the fineness of the face. The filling in these two weaves is set 2 face 1 back.

Two combinations of 5-leaf satin weaves for Eskimo overcoating cloths are shown at Figs. 1456 and 1457. The face of both and

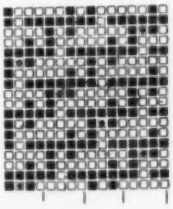


FIG. 1464

the back of Fig. 1456 are woven with a warp satin; the back of Fig. 1457 is a filling satin, and, to avoid the long filling floats on the back, is made a double satin.

Two back weaves for beaver cloths are shown at Figs. 1460 and 1461, with blank spaces showing the position of the face

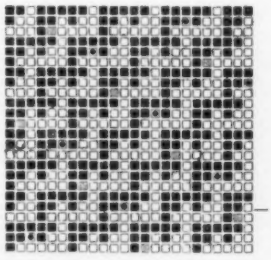


FIG. 1466

picks. Fig. 1460 shows a rib, Fig. 208; Fig. 1461 shows a double 5-leaf warp satin. The filling is set 2 face 2 back, the two face picks being inserted between two back picks woven alike. This arrangement is often adopted when it is desired to have the back well covered by the filling.

Overcoating cloths with curled or looped effects on the face resembling Persian lamb skins are made with carded woolen warp and back filling, the face filling being made by doubling a fine thread with a coarse thread of luster wool. In twisting the ply yarn, the coarse thread is run slack on the fine thread as a base, thus forming loops or curls. About two inches of the coarse thread is twisted on every inch of the fine yarn. A very fine thread, called the binder, is twisted

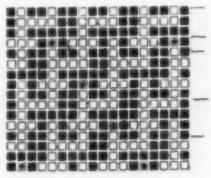


FIG. 1465

in the opposite direction around the other two and develops the loop.

The face is usually woven with a broken 4-leaf filling twill or a filling satin, the back with a 2 up 2 down twill or a weave which throws the filling on the back. Fig. 1458 is made with a broken 1 up 3 down twill on

1468 1469

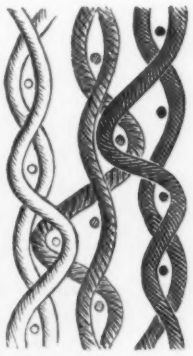


FIG. 1467

FIG. 1471

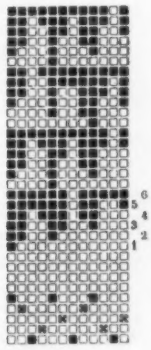


FIG. 1470

the face, and a 2 up 2 down twill for the back. It is set 1 and 1 in the warp, and 1 face 2 back in the filling.

Fig. 1462 is woven 1 face 2 back in the warp and 1 face 3 back in the filling.

The weave is a 4-leaf broken filling twill on the face, 2 up 2 down twill on the back.

Both weaves should be stitched from face to back as shown in the draft.

In Fig. 1463 the face filling is woven with an 8-leaf satin, the back filling with a modified broken twill; filling, 1 face 2 back. This is a single fabric woven with a back filling, and not a regular double fabric.

The illustrations already given show the method of constructing double weaves, of which the number is unlimited. The principal difficulty to be overcome in constructing double cloths is in stitching the two fabrics together. The rules already given should be strictly observed and care taken when drafting a new weave for a double texture to have the stitchers in the right place.

The divided drawing-in draft, No. 8, is best for double cloths, the face and back warp coming on separate sets of shafts. In some mills it is customary to draw in the warp straight, using as many shafts as there are threads in the weave pattern. It is often better, however, to draw in each kind of warp on separate groups of shafts. In many cases this enables the warp to be drawn on a less number shafts than with a straight draft.

Fig. 1459 shows a double cloth weave, 2 face 1 back in warp and filling, broken 4-leaf warp twill on the face, plain weave on the back, with divided drawing-in draft.

The warp of double cloths should be reeded as far as possible as follows:

1 face 1 back: 4, 6 or 8 threads per dent.
2 face 1 back: 3 threads (1 face 1 back 1 face) per dent; 4 and 5 alternate per dent; 6, 9 or 12 alternate per dent.
3 face 1 back: 4 threads (1 face 1 back 2 face) per dent; 8 threads per dent.

FIG. 1472

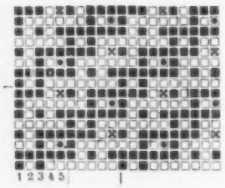


FIG. 1473

FIG. 1474

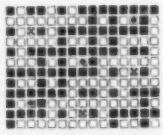


FIG. 1477

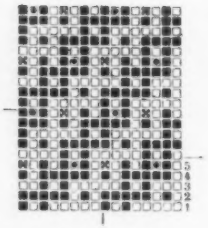


FIG. 1478

When there are 2 or more face threads for 1 back thread, the back thread should not come first or last in the dent.

DOUBLE CLOTHS WITH STUFFING THREADS

Stuffing threads are woven into the cloth when the requisite weight and thickness cannot be obtained with the regular double texture. These stuffing threads, which may be in warp or filling, lie between the face and back. They do not come to the surface on either side of the cloth and can, therefore, be of any color or quality, and different from either face and back. They often serve to increase the prominence of stripes and figured effects as in pique and matelasse.

Stuffing warp threads lie above every back pick and below every face pick. If the stuff-

ing yarns are in the filling, all face warp threads must be raised above and all back warp threads lowered below each stuffing pick. Fig. 1464 shows stuffing warp threads in a double cloth with a 2 up 2 down twill face and plain back. Fig. 1465 shows the same face and back weaves woven with a stuffing pick. In each case the order is 1 face 1 back 1 face 1 stuffing thread.

THREE OR MORE PLY CLOTHS

Three or more fabrics are woven one above the other and stitched together when very thick and heavy goods are to be made. In drafting a 3-ply weave the procedure is as follows:

The position of the threads for each fabric, face, center and back, is first indicated on the draft.

The face weave is then drafted on the face threads, the center and back threads being left blank.

The face warp threads are now raised over all the center picks.

The center weave is drafted, the back threads being left blank.

The face and center warp threads are raised above all the back picks, and the draft is completed by drafting the back weave. The stitching can be effected in various ways:

1. From back to center and from center to face.

2. From face to center and from center to back.

3. From back to center and from face to center.

4. From center to face and from center to back.

Fig. 1466 shows a 3-ply weave, each woven plain and stitched in 8-leaf satin order, according to the first method above mentioned. Warp and filling are set 1 face 1 center 1 back.

Fig. 1467 is a longitudinal section of the same weave and shows plainly the construction of the fabric.

Fig. 1470 shows a 7-ply weave used for belting. Five sets of warp and 6 sets of filling threads lie over each other. The sixth set of filling is in fact a back filling on the 5-ply fabrics. The first or face fabric is stitched to the second, the second is stitched to the third; the third to the fourth; and the fourth to the fifth. The two outside fabrics (1 and 5) have the same set and weave, except that the risers of one weave correspond to the sinkers of the other.

Of each 12 warp threads, 3 belong to the first or face weave, 3 to the back weave, 5 and 2 to each of the three interior weaves. Fig. 1468 is the weave for the face; Fig. 1469, the weave for the second, third and fourth fabrics; and Fig. 1471 the weave for the back texture. The complete draft is shown at Fig. 1470. The division and distribution of the warp threads are indicated at the bottom of the draft; of the filling threads, by the figures 1 to 6 at the side. The warp is reeded 12 threads in a dent. A fabric that is quite common is woven with a reed having 13 1/2 dents per inch.

THREE OR MORE PLY CLOTHS STITCHED WITH EXTRA WARP OR FILLING

The ordinary method of stitching 3 or more ply-cloths tends to solidify the fabric by drawing the separate textures together. This method is satisfactory when a firm and durable cloth is desired.

For thick, bulky goods, it is necessary to weave separately each of the textures that form the cloth and without interlacing the threads of one fabric with those of another. The different textures are bound together by extra warp or filling threads, which pass by degrees from one side of the cloth to the other. An extra warp beam is required for these extra threads if they are introduced in the warp.

This method of stitching is used extensively for golf cape goods, of which the face color is usually plain or fancy, and the back plaided. The binding thread is fine cotton yarn. One stitching thread is usually inserted after every four of the regular threads. They are raised above a face pick and lowered below a back pick, thus binding the separate fabrics together. When not so raised or lowered they lie hidden between the upper and lower textures.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.

SEAMING SWEATER COATS

Editor Textile World Record:

Will you please advise us what is the best method for the seaming together of what is known as the Shaker sweater coat, also the Jumbo stitch sweater coat. We refer to the cuffs, collars, sleeves and sides. Marcus (2277).

The majority of knitting mills are finishing their Shaker coats by hand, whereas for the seaming up of the sides of Jumbo stitch sweaters that are knit front and back separately, a special sweater overseamer may be used to good advantage. Shaker coats are generally made without side seams. Some are using the sweater overseamer for the seaming-in of the border, having provided a firm edge by means of a Merrow machine to the body cut open in front.

The hemming is best done on a circular looper and the putting in of the sleeves on a flat bar looper. Max Nydegger.

REDDISH SHADE ON DEVELOPED BLACK

Editor Textile World Record:

Kindly let me know what is the cause of the reddish shade on the enclosed sample of developed black, dyed and finished as follows in a 500-lb. machine.

Standing Bath

4½ lbs. Black per 100 lbs.
3½ lbs. Common Salt.
50 min. boil, 1 wash.
2 lbs. Nitrate of Soda.
5 lbs. Sulphuric Acid.
30 min. cold, 2 washes.
2 lbs. Developer.
¾ lb. Soda Ash (58%).
30 min. cold, 1 wash.

Soap at 120° F. with a good olive oil soap softener. I would appreciate it if you could let me have this information at once.

Brownville (2257).

It is very difficult to answer this question in a way that will be satisfactory to "Brownville." His formula for dyeing a developed black appears to be correct and under ordinary conditions of dyeing should give a good black, although it is possible that too much developer has been used. The reddish overtones on hosiery are generally found to result from an unsatisfactory mixture of dyes, from impurities in the developer, or from a brownish cotton.

A reddish tone may result from dyeing in an unclean dye kettle, or from the fact that the dyer accidentally used too much color. The last named condition is very often the cause of the trouble. In the present case it would be best for the dyer to test his dyestuff and see if it continues to come up too red on his regular stock, and if it does, to offset the red tone by means of a slight touch of green.

It is well to bear in mind that for blacks, only 7/10 per cent. of developer need be used when the amount of dye is about 4 1/2 to 5 per cent., calculated on the weight of goods.

Following is the best way to use developers for direct blacks: Dissolve 10 pounds of developer (usually phenylamine diamine) in 10 gallons of boiling water, together with 3 pounds of soda ash. For developing blacks, use 5 1/2 pints of this solution to each 100 pounds of cotton goods. Beta-Naphthol.

There does not seem to be any good reason why a reddish shade should appear on the stocking, unless the fault is in the diazotizing bath. The amount of nitrate of soda is small and I have found it better to use three pounds of nitrate of soda and five pounds of sulphuric acid. It is even better to use two pounds of sulphuric acid in the second rinse water after dyeing and five pounds of sulphuric acid and three pounds of nitrate soda in the diazotizing bath. Rinse

the goods well and develop. I would increase the soda ash used to put the developer in solution. "Brownville" does not state what developer he is using, but I presume it is phenylene diamine. If he uses beta napthol, say one-fourth or one-half the amount of the total developer used, the shade will come out bluer. If this does not bring the shade wanted, I suggest using a bluer shade of black than the one now used.

Amazon.

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FABRICS FOR POLISHING METALS

Editor Textile World Record:

What kind of material is used for buffing wheels for polishing metals? From what material is the enclosed sample of yarn made?

Garnet (2284).

As far as can be seen from the minute sample received the yarn is spun from camel hair noils, an article little used for any other purpose than to make soft knit underwear. Inquiries in the best-informed quarters in England fail to show that this material has been hitherto used for buffing-wheels, but interest has been shown in the suggestion that it might be valuable for making mops to finish off the finest class of metalwork. The noils are produced in Bradford and in Germany and there need be no difficulty about getting a supply.

A Handbook of Electro-plating (W. Canning & Co., Great Hampton St., Birmingham), deals at some length with the question of polishing tools. This book and Messrs. Canning's catalogues form the basis of the following information: The subject is a large one because of the endless variety of articles requiring to be polished. The general principle underlying the whole is that of using sharp-acting substances and fabrics for rough work and softer ones for fine. Bristle brushes and various kinds of leather, bull-neck, walrus and buffalo are used for special purposes. Leather is sometimes replaced by superfine wool felt to make polishing bobs and as felt does not split or fly and as it holds glue and emery well it has distinct advantages over some other materials used in making wheels.

The question refers presumably to mops, made of concentric circles of cloth. In some cases the layers of fabric are stitched spirally and the center is usually washered for the lath. The fabric used is calico principally made out of American cotton and from 98 to 105 folds go to the inch of the regular white mops recommended for grease-mopping, brass work, solid nickel, nickel plate and cycle work. For a finer range of purposes, brown mops made of Egyptian cotton are used, ranging from 45 to 60 folds to the inch. Soft brown mops are used for finishing silver, silver plate, tinware and delicate brasswork. For finishing gold, silver, electro-plate, tin and copper work swansdown mops made of a raised cotton cloth are taken. These are of course thicker and run 24 folds per inch. Mixed swansdown and plain cloth mops are also used and these fray less than the solid swansdown. A point is made of describing the white American mops as "non-flying, will not rove in working." Again there are basil and chamois leather mops. Mops are made of all diameters from 4 to 18 inches and of from 25 to 240 folds.

The notion of using softer fabrics than any that can be made from cotton is an interesting one and experiment need not be confined to camel noils. It might be worth while to experiment also with cashmere. How these would behave when running on the lathe beyond the minimum surface speed of 5,000 feet per minute remain to be shown. The mops could not be very cheap and their wear would be a consideration.

This notion leads to another. If soft fibered mops would be good in one direction why should not harsher fibered ones be good in another? There are on the English market a line of polishing cloths made by Jones Brothers & Co., Manchester, under the name Selvyt. These are unfinished cotton velvets and because of their loose pile they are unfitted for revolving at high speeds. But the raw cotton from which they are made is understood to be of a specially harsh character and the wiriness of the fiber is connected with their virtues as polishers of jewelry. Presumably buffing mops can always be made sharper in action by treating with abrasives, but the possibility that sharp-

toothed textiles might be useful deserves at least consideration.

The use of rex-finished cloths such as dusters in English metal-burnishing shops is an associated matter of interest. The name denotes cotton cloth finished by dissolving and precipitating upon it a portion of its own cellulose, so that its interstices are closed. Like Selvyt, the Rex cloth is used in place of chamois leather. Regent.

DOBBY AND JACQUARD FIGURES

Editor Textile World Record:

What is the proper definition of the term "jacquard weave" as applied to weaves made otherwise than upon jacquard looms?

Talisman (2279).

No sanction has been found in English practice for applying the name jacquard to dobby weaves nor is any such habit known. The goods produced on either class of loom are called generically "figures" and while small and simple figures are woven ordinarily on dobbies the larger and more complex have necessarily to be produced upon jacquards and they are often invoiced as jacquard figures. Dobby looms are of course much more numerous than jacquards and they are made both with positive and non-positive motions with from 8 to 40 shafts. It is certain, however, that few looms carrying the maximum of harness are in use and to obtain authoritative information on the point reference has been made to G. Hattersley & Sons, Ltd., loom makers to manufacturers in all countries and inventors of the Keighley dobby. They say:

> For fancy cottons non-positive dobbies are used exclusively and in non-positive dobbies nine-tenths of our output are 16 shafts. The bulk of the positive dobbies, which are almost entirely for coatings (i. e., worsteds) are made with 28 shafts.

In other words, the vast majority of dobby looms in use are constitutionally incapable of producing large-sized figure effects.

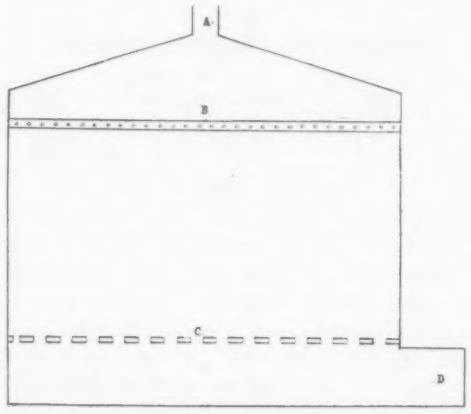
Wessex.

A SULPHUR BLEACH HOUSE

Editor Textile World Record:

We would like to know what is the best type of a sulphur bleach house. We have built two wooden structures for bleaching our wool underwear in the garment, but find that they soon fall to pieces. If you have not already published an article on this subject, possibly some of your correspondents can advise us what is the most satisfactory construction. Bleacher (2235).

A sulphur bleach house should be constructed of wood covered completely by sheet lead that is soldered together with a mixture of lead and tin at all joints. As this is a rather costly affair many prefer to use the chamber illustrated in the accompanying sketch. This is an ordinary brick building



furnished with an inclined roof also of brick, and which terminates towards the middle into a sort of chimney, A. Towards the upper portion of this building are fixed a series of wooden supports, B, furnished with pot pegs for the hanging of the wool underwear. These supports are covered completely in all their length with lead that is soldered together in order to leave no open spaces through which the corrosive gas can pass. The perforated bottom, C, is also of wood similarly covered with lead and forms a gas chamber at the bottom of the building from which the gas is distributed evenly through the building. The gas (sulphur dioxide) is generated from the chamber, D. So as to avoid the action of the gas on the walls, floor or ceiling of the chamber, these are covered with a thick coating of tar that is allowed to dry completely before the chamber is used.

If properly constructed such a bleach house gives very good results and can be made to last indefinitely.

Raffaele Sansone.

Our French correspondent replies as follows:

Sulphur bleach houses for bleaching wool goods are usually built of brick or stone and plastered in the inside with cement. The ceiling is vaulted so that the condensed fumes trickle down the wall instead of falling directly on the goods that are being bleached. The door is made of iron, above which is a hood provided with a ventilator which serves to distribute the gas uniformly through the room.

The goods are spread on screens or rods and the sulphur is burned in iron basins, the door being closed hermetically. This is the method adopted for bleaching wool. Silk is bleached at Lyons in chambers cut in the rocks along the edge of the river Seine. These chambers have two openings, one for the admission and the other for the exit of the gas. Gaul.

Wood has nothing to commend it for the purpose. When sulphur is burned the gas sulphur di-oxide is given off and from this sulphurous and ultimately sulphuric acid are formed, with results highly detrimental to wood. In the Yorkshire district where most sulphur-stoving is done the stove-houses were originally stone structures, built of a sandstone containing little lime and hence proof against the action of acid. The new stove-houses are built of white glazed brick and this seems to be the ideal material for the purpose. The glaze resists acid perfectly, the illumination within the house is much better than in stone ones and the place is easily kept clean.

The hooks or fittings should be of zinc upon which a white deposit of zinc sulphate quickly forms. The deposit resists corrosion and does not stain the goods. Three systems are in vogue for bleaching cloth by sulphur fumes:

(a) The old system, in which the cloth hangs in vertical pleats and the stove is unaided.

(b) The preferable system, in which the cloth is stretched horizontally across the chamber and a fan sucks the fumes so that they travel over layer after layer and reach all parts.

(c) The traveling cloth system, in which sulphur and nitrate of potash are burnt together in the stove, with effusion of sulphuric acid. The cloth is meanwhile traveling all the time and has been damped before entry. By some people this is thought not to give as good results, although the work is done quickly.

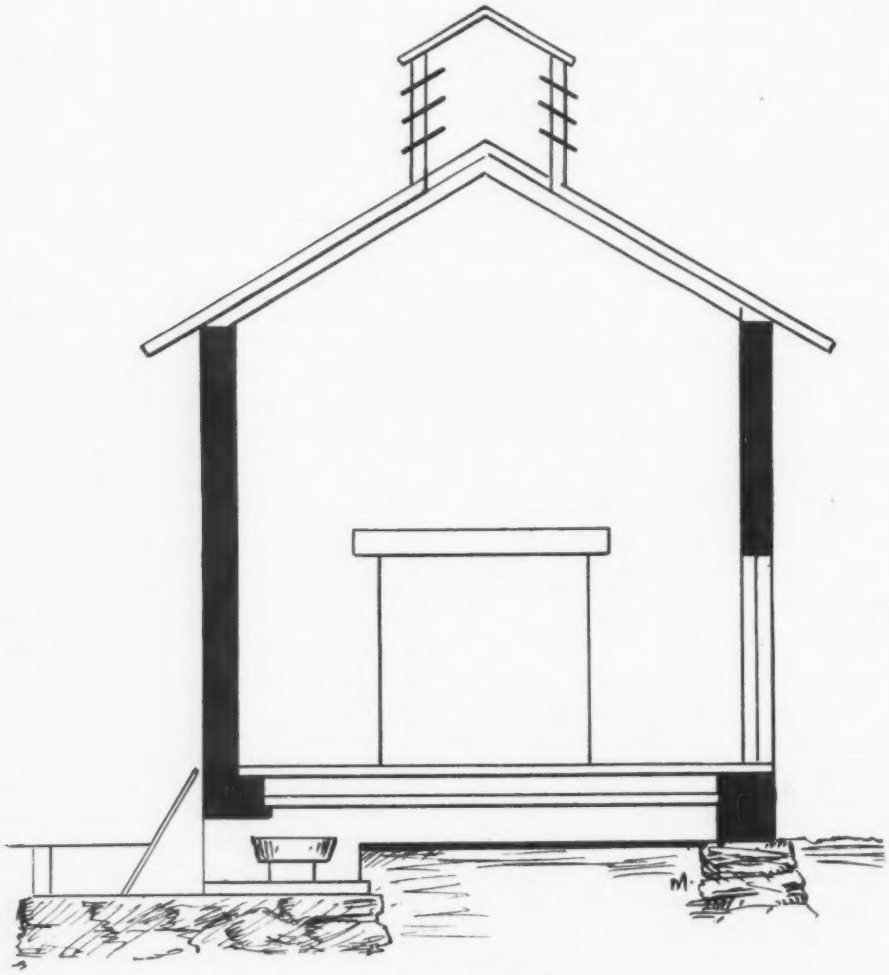
Woolens needing only to be half-bleached are treated preferably by the peroxide process, or with bisulphites in solution. The answer refers immediately to cloths but the details will perhaps be of interest to the inquirer. In connection with the inquiry it may be of some interest to note that Thomas Gardiner, of Leicester, Eng., who died in 1837 at the age of 94, was the first to bleach worsted hosiery with sulphur fumes. Regent.

A wooden sulphur house is never very satisfactory. Besides rapidly falling apart owing to the gradual corrosion of the nails used in its construction, the wood in a similar manner quickly yields to the acid vapors and in a short time repairs have to be made that cost more in proportion than interest on an investment for a good structure. While sulphur houses are fortunately somewhat out of date, there are some concerns that seem to prefer them for bleaching than to make use of more modern methods of bleaching.

The best and cheapest sulphur house is constructed of brick or concrete, painted inside when new and absolutely dry, with not less than two coats of good quality of asphalt paint or paint made from petroleum pitch, giving a new coat twice a year thereafter. Only by such care will the structure endure. The interior fittings, inside poles and hangers, being made of wood, will have to be replaced from time to time.

The house should have well made windows at each side and opposite each other to permit an obstructed view inside, also two large doors at each end, and kept in place by means of wooden bars. The floor should be double, and the sulphur pan placed at one side and in a special opening to permit free access of air for a short time after the brimstone is lighted.

The hip roof should have proper ventilators, and painted with the asphalt paint. These ventilators to be arranged so as to be opened and closed from the outside by means of chains or tarred ropes. A good



A SULPHUR BLEACH HOUSE

size for such a sulphur house is to give it a cross-section of about 144 square feet (12 feet wide, and an average height of 12 feet) and 17 feet 6 inches long, thereby giving to it a content of 2500 cubic feet. Such a house will contain 500 cubic feet of actual oxygen, the atmosphere consisting of 1/5 oxygen and 4/5 nitrogen, the latter being inert in the bleaching process. The 500 cubic feet of oxygen weighs 17 pounds and require exactly 17 pounds of brimstone to make 34 pounds of gaseous sulphurous acid (SO) all the structure will hold. In practical work, not more than 22 pounds of brimstone would be used, as any great excess is volatilized and later condensed as pure sulphur on the goods, from which it cannot be removed.

Sulphur houses should be built on perfectly dry ground, and when not in actual operation, the doors, windows, and ventilators should be thrown wide open. To

guard against fire due to occasional spurting of the burning brimstone, the sulphur pan should be provided with a flagstone to rest upon, and a flagstone shield or baffle plate mounted some distance over the pan.

The accompanying sketch shows a sulphur house built after the suggestions contained in the above description. L. J. Matos.

DAMAGED CALENDER ROLL

Editor Textile World Record:

How can I fill in a number of rubs on a paper roller in a calender machine? These were caused by the tape wrapping the steel roller.

Rockwell (2244).

This question is rather difficult to answer inasmuch as it is not stated plainly. Fig. 1 shows the roll that is damaged. If the dam-

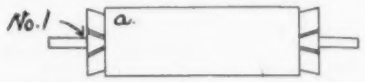


FIG. 1. A DAMAGED CALENDER ROLL

age is near the part marked A, the only remedy is to take the roll off and put it on the hydraulic press. Take off the end marked 1, removing the cop and paper. When the damaged paper is reached take that part off and put on new paper. When the new paper is put on also put on what good paper was removed and then put on the head. Then take it out of the press and put it in the lathe. Take off all the new paper and take one cut across the roll with the diamond and see that the face of the roll is quite level and true. Next put the roll in the calender and let it run easily for 1/2 hour with a little pressure. The only way to take out a damaged calender roll is to let it run a long time turning on as much steam as the calender can stand. Gustave.

FIREPROOFING BURLAP AND DENIM

Editor Textile World Record:

We fireproof a lot of burlap and denim and would ask you to send us as soon as possible the best and simplest recipe for this process. The burlap and denim is in various colors, mostly green and red, and only commercially fast.

Denim (2261).

A treatment which gives fairly good results and is cheaply and easily carried out is to impregnate the fabric fully with the following solution, the proportions being based on the weight of the material:

10% Tungstate of Soda,
5% Chloride or Carbonate of Ammonium.

The goods should be dried without washing off, leaving the chemicals in the fiber. The recipe has been extensively used in English practice and is well recommended by practical men. Wessex.

Fireproofing of burlaps and cotton denims may be effected by the applications of various chemicals which will retard the progress of flame. It is a mistake to assume that a textile fabric can be so treated that it will not be consumed if allowed to remain in contact with fire long enough for the vegetable matter to become carbonized.

Permanent fireproofing of textiles consists in treating cotton with certain salts of tin, which when fixed cannot be washed out with water.

For such goods as do not require washing, the fabrics may be treated with a solution of:

Ammonium sulphate	lbs.	80
Sal ammoniac	lbs.	25
Boric acid	lbs.	30
Borax	lbs.	15
Starch	lbs.	20
Water, to make	gals.	100

Or the following solution may be employed:

Tungstate of soda	lbs.	30
Borax	lbs.	30
Wheat starch	lbs.	60
Water, to make	gals.	100

If the presence of the starch is undesirable, it may be omitted, in which case the goods are run through a bath made in the proportion of not more than 1 1/2 pounds of chemicals per gallon of water, while for very good proofing, a strength of 1 pound is quite sufficient.

The simplest fireproofing composition is equal parts (half a pound each) of sulphate of ammonia and tungstate of soda dissolved in a gallon of water. The goods are impregnated with this solution and dried.

L. J. M.

SLACK SLIVERS ON DRAWING FRAMES

Editor Textile World Record:

How can I remedy a web in which one of the slivers after passing through the iron rolls of the drawing frame slackens and causes the trumpet to

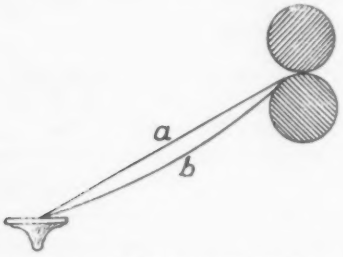


FIG. 1. A SIDE VIEW OF THE WEB

clog? I enclose two sketches. Fig. 1 is a side view of the web, a, with one sliver, b, hanging down. Fig. 2 is a view looking down on the web, a, the slack sliver, b, being shaded.

Brummel (2264).

The trouble mentioned by "Brummel" may be caused by an uneven sliver at the back of the frame. I suggest that the sliver running slack be taken out and weighed to determine the amount of variation. With six slivers running through one pair of rolls top and bottom, the sliver tends to hold the rolls apart. If there is a variation in the weight of the six slivers there will be a variation in the tension of the sliver on the front. If there are three slivers weighing 50, 60 and 50 grains per yard, and they are running on the rolls as given here with the heavier one in the center, the middle or heaviest sliver will run slacker than the other two, because it holds the roll away from the light slivers, which will run tight. This can be illustrated by taking hold of the stirrup on the front roll and raising the weight slightly. The end running slack will at once become tight. The uneven sliver may be traced back to the card or picker. This reminds me of a condition I found in a large card room recently. There were nearly 200 cards in the room and about six different makes. Though they had had a man in charge who was supposed to know his business, the rooms were in bad condition. I found the draft or feed gears to be all about the same number of teeth, but the draft varied from 80 to 105 with a consequent variation in the sliver. There was trouble with uneven tension on the front of the drawing. After I had gone over all the cards and made the draft uniform, we were enabled to lessen the draft between calender roll and front roll on the drawing frames 5 to 6 teeth. The sliver was being stretched considerably, but on account of the uneven sliver coming from the card they had found it necessary to change gears until the stock would run through the frame. On another occasion I found considerable variation. Tracing the trouble to its source I found the lappers making a lap of the same weight, but one machine was making a lap 2 1/2 yards longer than the other. Someone had changed one of the gears in the train of gears of the measuring device. This had been running for a long time. There are various causes for unevenness of card sliver, and nothing but a systematic checking up of all gears and weighing from every card and every machine can guarantee accurate results. I am inclined to believe "Brummel's" trouble is caused by uneven card sliver. The only way one of the six slivers can run slack is for the roll to turn out a greater length of that sliver than of the others. To do this it must be meshed deeper in the gear at that point. Unless the rolls are worn badly and unevenly the trouble is evidently uneven slivers to begin with.

Ringsted.

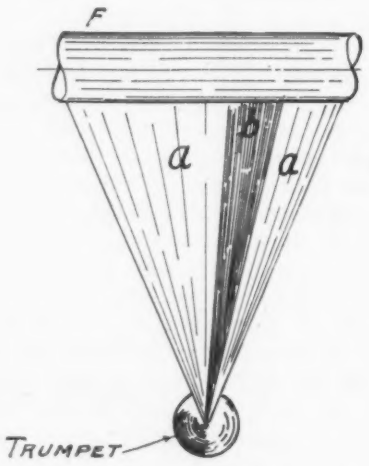


FIG. 2. A SIDE VIEW LOOKING DOWN ON THE WEB

WASTE IN COTTON CARDING

Editor Textile World Record:

We get too much waste underneath the lickerins of some of our cards. Sometimes we find good cotton in the waste. I have tried to set the lickerin screen in different ways, also the mote knives have been set both closer to and farther from the lickerin, but nothing seems to be right. Perhaps the knives have to be set at a certain angle to the lickerin or may some air current cause the trouble? We run bleached cotton, one inch staple. The cards are kept well cleaned and the teeth in the lickerin are in good condition. Please tell me what to do that the accumulation of waste will cease? Urbana (2256).

It is very difficult to describe the proper remedy for this trouble without being on the job and looking things over. I should think that the cards were doing too much. Bleached stock is very hard to work and needs much more humidity than natural stock. It is a good plan to have a humidifier or a spray of moisture falling on the stock as it is going through the finisher picker. The spray should fall on the stock between the second and third laps on the finisher apron, causing the cotton to be evenly moistened. A twelve or fourteen ounce lap is very good for this work. The card should turn off from fifty to seventy-five pounds in ten hours. The sliver should be from fifty to sixty grains per yard. The card settings should be as follows:

Licker screen nose, 9/1000 of an inch.
Licker screen back, 1/8 of an inch.
Licker to feed plate, 12/1000 inch.
Licker to cylinder, 9/1000 inch.
Licker to mote knife, 12/1000 inch.
Cylinder to screen back, 32/1000 inch.
Cylinder to screen front, 3/16 inch.
Back plate, lower edge, 17/1000 inch.
Back plate, upper edge, 32/1000 inch.
Front plate, upper edge, 10/1000 inch.
Front plate, lower edge, 17/1000 inch.
Cylinder as close to doffer as one can run it.
Cylinder, 165 r. p. m.
Doffer, not over 10 r. p. m.
Draft in card room, over 100.

With these settings good results should be obtained on both bleached and unbleached stock. The drawing frames are very liable to give trouble when running colors or bleached goods. There is apt to be more trouble if the rolls are metallic than when they are covered. With metallic drawing rolls I would advise looking after the setting and making sure they are correct. At bite of rolls the front should be from the second 1/8 inch over length of stock, increasing 1/16 inch between second and third, and 1/16 inch between third and back roll. This is for the front roll speed of 250 r. p. m., and a fifty grain sliver and six doublings. I should not draw over six, and make it five if I could. The draft between front and calender rolls will have to be enough to keep the ends from slacking. The trumpet holes should be larger than for natural stock. Be careful not to have the calender press rolls press too hard together, or the pressure will grind the stock. A little whiting on the parts of the machine over which the stock runs will help the work.

The metallic rolls need to be scoured frequently and the collars at the ends made large enough so the rolls will not bottom. After weighting them down, try them with a fairly thick piece of wrapping paper between flutes. Then try to move the paper along the roll. All the front rolls can be gauged this way. With these precautions I think good work will result. I have had bleached work that could not be run well no matter what was done, because the stock had not been properly washed. The bleacher should determine this by the feel of the cloth. Lakewood.

The sliver generally runs slack on metallic drawing rolls that have been running for a long time. I have never seen this happen on new rolls. It is caused by the base on the rolls wearing, which causes the flutes of the rolls to run deeper. This increases the diameter of the roll and delivers faster than the calender roll will take it up. To remedy this the flutes will have to be cut down. Where the rolls are not sent to a regular roller repair shop, they can be cut down in a lathe by filing them down and rubbing or polishing the flutes with pumice stone. This will stop the sliver from running slack between the metallic roll and the calender roll.

When good cotton falls under the lickerin, raise the knives just as close to the feed plate as possible. On some cards there is about three inches space between the feed

plate and the screen. This space is where the knives work, and the lower or farther away the knives are from the feed plate the more cotton will fall out. If "Urbana" will raise his mote knives close to the feed plate the difficulty will disappear. Norwich.

BLEACHING COTTON GOODS

Editor Textile World Record:

I was interested in reading "Parma's" reply to Clayton (2203), and would suggest that if these goods are to be sized a mixture of caustic soda, 1 pound to 100 gallons of water, be used. Wet the goods out with this mixture and after coming off the singeing plate or gas singeing machine, pile the goods up and let stand over night. This can be arranged by having two tubs on a platform. Dissolve the caustic, mix with water in tubs and run into trough at back of singeing machine. Then run the goods through the washing machine, using hot water and then into the kier. If there is a squeezer at the back of the washing machine, put a trough in front of it and run in warm water. In that case the goods go through the washer into the trough in front of the squeezers and into the kier. I have found that this method works well on goods that are boiled the second time. Having the goods lie over night in the caustic mixture will soften up the dressing and oil spots in such a way that the goods will be clean before going into the kier. I use caustic soda alone in the boiling mixture and boil from 8 to 12 hours. A great mistake is made by running in cold water after running off the boiling mixture after it has begun to boil. Cold water fixes in the goods a great deal of the stuff that should be boiled out, and the goods will often come out with large brown or yellow spots. In that case, the only thing to do is to boil them over again. The better way is to run in hot water first. When the liquor comes out clear, cold water can be used. I find that soda ash in the bleaching liquor helps along the bleaching process. If there is anything left in the goods the soda ash will take it out. I use muriatic acid to sour with. Hector.

CORRECTION

An error occurred in "Parma's" reply to "Clayton" (2203) on page 120 of the December issue. The proportions should have been given by percentage, making the formula read as follows:

1% caustic soda,
2% soda ash,
4% silicate of soda.

STREAKS IN HOSIERY

Editor Textile World Record:

Enclosed is a sock manufactured of 2/32s combed peeler mercerized in the cuff, 2/40s in the body, 2/50s in the heel and toe and 1/60s in the splicing. We would like to know the reason for the streaked effect. Some of our people think it is caused in the mercerizing, while others claim that a running of the single thread with the double thread is bound to show a difference in the dyeing. Kindly advise us as to the real cause, also your opinion upon running single and double threads together in the same sock. We are also having considerable trouble in keeping our sizes even, as the machines set on one size start off in the morning and before noon they run from 1/2 to an inch larger. Kindly explain the cause of such a variation. Also inform us as to the number of machine men and helpers required to operate 14 Paxton & O'Neil plating machines, and thirty-nine Mayo model A and model C machines, fourteen Wildman ribbers and ten record loopers. Summit (2248).

I find that a plain lisle yarn is used as reinforcing in heel and toe and a single soft yarn as splicer. Yarn not mercerized will not take the same color in dyeing as a mercerized yarn. The process of mercerizing, especially the caustic bath, removes all vegetable oil and acts as a mordant by opening the fiber and making it more susceptible to the dye. To prove this put a common lisle stocking in with the mercerized lot when dyeing and the difference in color will be plainly noticed when finished. I think the trouble can be overcome by using mercerized cotton, and feel sure no trouble will arise with streaks except possibly in the splicing. I do not think a single yarn can get as much luster as a double yarn on account of not being able to stand the tension in the process. I understand that tension plays a very important part in adding to the luster.

I have never had any trouble with varia-

tions in size, except in winter, when in the morning the machines were cold and would knit tight and naturally make short goods, but they would get back to their normal state again as soon as they got warmed up and running smoothly. It is possible that the dog on the chain ratchet is skipping occasionally. This will cause the goods to be long. One operator, a girl, should run two knitters and do her own topping. Two good fixers should be able to handle the machines and keep them in repair. On ladies' goods, one operator should run from 10 to 15 knitting machines. Cipango.

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ENGLISH DISCOUNTS AND TERMS

Editor Textile World Record:

I would like information regarding usual discounts and time allowed on textiles in England. Emmott (2267).

These allowances vary considerably and differ with the goods, the locality and the destination. Standard terms for cotton yarn and cloth for the home market are 2 1/2 per cent., 14 days. There are also the so-called Manchester terms of 2 1/2 per cent. monthly, with the alternative of 3 per cent. for prompt cash. On cotton yarns for export 1 1/2 per cent., 14 days is the regular allowance. Short terms are much preferred in the cotton industry and have contributed greatly to its development in Lancashire. Shipping merchants with the help of banks make extended terms to suit some of their distant customers.

In the Bradford wool and top trade there is a custom known as "four months' discount," which is confusing at first sight, but very easy to reckon in practice. "Cash in 7 days less 4 months" is the way in which these terms are often written. The discount rate implied is 5 per cent. per annum and four months at this rate equals 1 2/3 per cent. Thus expressed the fraction looks forbidding, but in terms of English currency 5 per cent. is one shilling in the pound (20 shillings). One-third of one shilling (12 pence) is fourpence and as we are dealing with four months the rate is one penny in the pound per month. At a month from date the amount of the invoice is due with discount of threepence in the pound; at two months with twopence; at three months with one penny in the pound and at four months the sum is due net. There are said to be about forty different sets of terms in use in Bradford in paying for tops, noils and waste, and although the idea of unifying them has been propounded, nothing definite has come of it. Cash in 7 days with four months' discount or in 10 days less 1 1/4 per cent. are usual.

Worsted yarn is sold less 2 1/2 per cent. discount and payment is due from local firms on the second Thursday of the month following in a bank draft at 14 days' sight. Monthly terms are the rule in worsted as against the fortnightly cotton terms. The carded woolen trade recognizes terms of one clear month, which means that October deliveries are paid for in December, November being the "clear month" between. On woolen and worsted cloths the regular discount is 2 1/2 per cent., with concessions ranging up to 3 3/4 per cent. for prompt payment, and the terms allowed varies from one to six months. Wessex.

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REMOVING WOOL FROM SHEEP SKINS BY MACHINERY

Editor Textile World Record:

Please inform me whether machines are used in America for removing wool from sheep skins. If so, we would thank you to ask the builder to forward us particulars. Australasia (2253).

Wool is ordinarily removed from sheep skins by hand, as this is the only method that enables the wool to be sorted. We are informed that machines are used for work when the value of the wool is very small, that is less than the cost of removing it by hand. These machines are built by the Turner Tanning Machinery Co., Peabody, Mass. We have requested them to send particulars regarding the machines direct to "Australasia."

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At Dresden great interest is being evinced in a large lace tablecloth, valued at $480 which has been made at Schneeberg. It measures 19 1/2 feet in length by 6 1/2 feet in width, and is now being exhibited in Dresden.

Knitting Department

THE KNIT GOODS SITUATION

The cold weather of February had the effect of still further reducing the stocks of knit underwear in the hands of jobbers and retailers, and manufacturers have shipped considerable merchandise by express during the past four weeks to assort up stocks that have become depleted by the late demand.

Retailers have made fewer reductions in prices during the past month than usual at this time of the year and the buyers who have been in New York to look for material for special sales report fewer stock lots being offered than usual, all of which indicates a better condition than is sometimes apparent at the close of the heavy weight season.

Spring underwear is being shipped fairly prompt, except in a few cases, where manufacturers are from three to four weeks behind schedule, this being principally on lines of women's shaped vests and pants.

Straight ribbed vests are being delivered nearly on time and some manufacturers are soliciting orders for duplicates at old prices, although some advances of 2 1/2 to 5 cents are asked on goods running from 75 cents to $1.00 and as much as 10 cents per dozen on lines at from $1.65 to $1.90.

A heavy business has been done on women's combination suits at from $3.25 to $3.50 and manufacturers of this class of goods state that they have had many calls for these light weight garments all through the winter, mostly in low neck, ankle length, and either sleeveless or with 11-inch sleeves. These are being taken as a rule in the plain stitch cloth and where they are shaped and sewed at the sides, many manufacturers are using the new machines that make the seams so flat as to be almost unnoticeable.

Among the new ideas being brought out in underwear is a men's union suit made with a ventilated closed crotch. The gusset is made of double thickness of porous fabric and the particular benefit is the perfect circulation which prevents accumulation of perspiration and consequent chafing. This feature is being brought out by George W. Kelly of Pawtucket, R. I.

The Shaughnessy Knitting Company of Watertown are launching an advertising campaign on a line of porous mesh underwear for women and children. This fabric is made on the same principle as the widely advertised men's mesh line that has grown so popular. The women's suits are made low neck, sleeveless and with lace trimming at the knees. The child's suits made either for boys or girls are provided with tapes and buttons and may rightly be called, three garments in one, as they constitute vests, pants and waists. These suits all retail at fifty cents each and with a strong advertising campaign as proposed, will undoubtedly grow to be very popular. They are sold under the "Olovknit" brand.

Several lines of imported underwear have made their appearance since the passage of the new tariff bill, but we learn that so far the business booked has been of small volume. Possibly one reason for this is that the imported lines are nearly all of flat two piece goods, whereas the tendency is very strongly toward combination suits and generally of ribbed fabrics, and as a consequence of this tendency, buyers are averse to adding any new lines of two piece goods, especially where the values are not particularly striking.

Prices on the majority of fall lines remain the same as last month. The manufacturers making fleeces at $3.75 appear quite pleased with their business, regardless of the fact that some lines are still offered at $3.62 1/2. Some buyers say they are satisfied to buy both, feeling that they are getting the full 12 1/2 cents' difference in the weight and finish.

Men's ribbed shirts and drawers at $3.75 are also well conditioned, in regard to orders, and notwithstanding that some lines may be had at $3.62 1/2, makers like the

Utica Knitting Company and the Oneita Knitting Mills are holding firm to $3.75 and can only accept orders for late delivery.

Salesmen for jobbing houses have now been out for a month and a careful resume of the orders thus far taken show that retail buyers are going slow. Quantities are not so large as usual, and in many cases it is found that the financial heads have given orders to buyers to put off purchasing till later.

One salesman with a large following in the Middle West says, "I will get my regular business, but what I usually get during the months of January, February and March I will get this year during March, April and May."

Retailers are buying freely of all lines of women's combination suits with Dutch neck, elbow sleeves, and are cutting down their orders on high neck, long sleeves. They are also following the same practice on their orders for vests in various grades, even to the 25-cent qualities.

HOSIERY

The outlook for the hosiery end is much brighter today than it was a month ago. Not that buyers have placed any great volume of orders since then, but the fundamental conditions have been strengthened. Raw materials have advanced in prices and this with the fact that general business conditions have improved must have its effect on the buyers who have not as yet completed their purchases for the season's requirements.

At this time last year deliveries were very much behind, but now shipments are being made fairly near to dates contracted for, except in the case of two or three mills in which there have been some labor troubles.

There has been practically no change in the demand for hosiery during the past month. Blacks continue to occupy the same prominent position with whites running a good second. After these, come a long range of colors to which has recently been added, the tango shade.

Silk hosiery continues in good demand and mercerized goods have improved to a very slight extent during the month.

There is a slight tendency on the part of consumers toward hosiery of a little heavier weight, showing possibly that some of the lighter weights have not worn as well as anticipated.

One New York commission house is showing a new line of hosiery, the boot of which is all fiber, not plated. It is claimed for it that a process has been discovered by which the wood pulp fiber can be made durable without being backed up with cotton or lisle thread. The pure fiber certainly makes a handsome stocking and if it meets the manufacturer's claims, it will sell freely.

Wool and worsted hosiery of all grades were sold up quickly, but fleeced goods have not been taken as freely. Possibly the confidence of buyers was shaken when reductions in prices of 2 1/2 to 5 cents were made so early in the selling season.

Domestic cashmere hosiery show reductions of about 25 cents a dozen from last year's quotations. While many samples of English and German cashmeres have come to this country, it is believed that very few orders have been sent out for them. Many lines of the English cashmeres are being shown with seamless feet and fashioned legs.

SWEATERS

Low grade coat sweaters for men to retail at fifty cents to $1.00 have sold as satisfactorily so far this year as last.

Practically only two manufacturers run the 50-cent quality and for these $3.75 is asked for the V neck, and $4.25 for Byron collars, with 25 cents extra for pockets.

The jumbo stitch garments are selling freely, but shaker knit goods are almost at a standstill.

The Yund, Kennedy & Yund Company show a heavy stitch garment made with raglan shoulders and shawl collar at $18.00, regular terms, while the Gilbert Knitting Company show a line of jumbo stitch goods with some wool and a hand-narrowed ruff neck collar at $1.50 net.

Buyers are placing orders for men's coats made with V necks at all the popular prices. These with shawl or ruff neck constitute the principal business, as the Byron collar is not taken at all except in the 50-cent grades.

For women's wear, little is being done except on brushed coats and on these lines many new and attractive styles are being shown. The lowest grade brushed garments around the market are those shown by Boyce, Wheeler & Boyce at $22.00 a dozen in brown, green and red mixtures.

J. & B. Allen of Philadelphia are also putting on the market a line of brushed coats in plain colors, such as magenta, emerald and Copenhagen at $30.00 with Byron collar, or at $33.00 with shawl collar and long sashes.

The Alberta Knitting Company also show a line of heather mixtures in brushed coats with shawl collars and belted backs, trimmed with large imported buttons at $39.00 and $42.00.

Buyers are placing orders on many of these lines of brushed goods for April and May delivery, as it is expected these will be very popular for outing coats during the summer.

THE JAPANESE KNIT GOODS INDUSTRY

A Report by George N. West, American Consul at Kobe, Japan, Made at the Request of the Textile World Record

Kobe, Japan, Dec. 19, 1913.

The growth of the knit goods industry in Japan, of which the city of Osaka is the headquarters, dates back only to 1903. At that time comparatively little attention was given to the manufacture of knit goods, the amount of machinery purchased through Kobe amounting to only $877. Four years later, there was purchased supplies for knit goods manufacturers to the value of $37,004 in this Consular district, which however dropped in 1908 to $19,605.

The United States made no sales until 1905 when goods valued at $409 were disposed of; the following year that was increased to $6,477, which however gained in 1907 to $10,682, but in 1908 dropped to $2,701, the only exporting nation making a gain that year being France, its increase being due to the attraction of large loans secured by several Kobe and Osaka concerns.

The following table tells the story for the past nine years:

Imports of Knitting Machines to Kobe

	1904	1905	1906
Belgium	...	...	...
France	...	...	739
Germany	...	$1,032	$2,287
Great Britain	$726	2,267	1,544
United States	...	409	6,477
Italy	...	...	...
Total	$726	$3,708	$11,047

	1908	1910	1912
Belgium	...	...	...
France	$1,732	...	$4,853
Germany	3,672	$5,176	2,836
Great Britain	1,600	565	349
United States	2,701	370	1,034
Sweden	...	79	1,413
Netherland	...	...	...
Total	$9,705	$6,190	$10,485

The imports of knitting machines into Osaka have been as follows:

1906	$10,013
1907	13,677
1908	9,900
1909	3,582
1910	7,511
1911	2,425
1912	...

FACTORIES

There are over 1,300 so called manufacturers in Osaka alone, but several hundreds of these are families who own hand machines and operate them in their homes, while only a comparatively few are large concerns, using various types of machinery. The motive power employed in the knitting factories in Japan, which are mostly engaged in the manufacture of underwear at the end of 1911, was as follows:

But one kind of motive power	37
Two or more kinds	10
Not worked by motive power	77
Total number of factories	124

In these 124 factories eleven steam engines furnish 127 h. p., eighteen gas engines furnish 184 h. p., eight petroleum engines furnish 45 h. p., twenty-six electric motors furnish 87 h. p., one motor being supplied with electricity generated on the premises and the other twenty-five purchasing current from others. Three dynamos of 21 k. w. were also in use.

The coal consumed during 1911 by those factories using this fuel, was at the rate of 5,100 pounds per day.

Hosiery, on the contrary, is made entirely

by hand machines. Firms in Osaka provide these and the material, and the work is done at home and is paid for as piece work. These machines are of Japanese make, a somewhat different style being used at Nagoya to that employed at Osaka. The accompanying illustrations show the different machines.

PRICES OF HOSIERY KNITTING MACHINES

Heel of Sock Knitting Machine, No. 1

60 Needles	$6.50
80 Needles	6.75
100 Needles	7.00
120 Needles	7.25
140 Needles	7.50
160 Needles	7.75
180 Needles	8.00
200 Needles	8.25

Osaka Style, 3 to 3 1/3 inch Diameter.

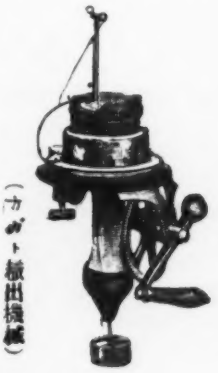


FIG. 1

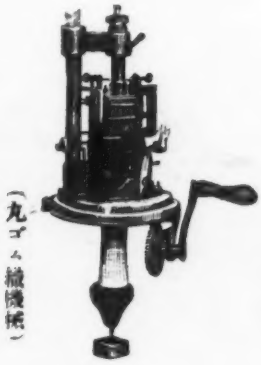


FIG. 2

Round Elastic Knitting Machine, No. 2, Osaka Style

30 Needles	$20.25
40 Needles	21.60
50 Needles	21.60
60 Needles	21.60
70 Needles	21.60
80 Needles	22.50
90 Needles	25.00
100 Needles	27.00

Finishing Roller Machine, No. 3, Osaka Style

$8.50 up to $11.25

No. 4, Flys Socket Machine, Nagoya Style

	No. 4	No. 5
60 Needles	$18.25	$9.25
72 Needles	18.50	9.75
84 Needles	19.00	10.00
120 Needles	20.00	10.75
148 Needles	21.00	11.50
160 Needles	21.50	11.75
180 Needles	22.25	12.25
200 Needles	23.00	12.75

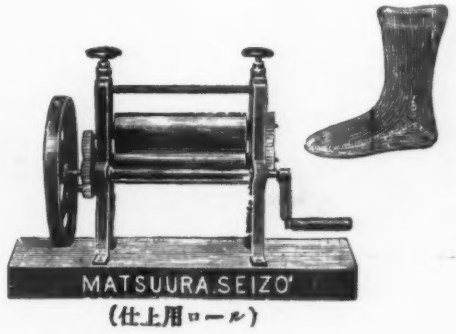
LABOR CONDITIONS

A large proportion of the work is done on hand machines in families at their own homes. The following statistics for 1911 will show the class of labor, wages and hours of work in factories:

	Male	Female	Total
Over 14 years	1,435	1,657	3,092
Under 14 years	87	199	286
Total	1,522	1,856	3,378

Daily Average Wages	Male	Female
Over 14 years	26 cents	14½ cents
Under 14 years	8½ cents	6½ cents

The number of working days in the year was 313; the number of working hours in a day, eleven.



(仕上用ローラ)

FIG. 3

The following is the rate of wages paid to hosiery makers, the lower rate being for the cheaper class of goods and the higher rate for the more expensive:

Wages per Dozen

Average striped pattern	25c.	to 35c.
Average plain pattern	17½c.	to 20c.
Sewing of heel and toe parts	4½c.	to 5½c.
Sewing of top part	2½c.	to 3½c.
Sewing foot and leg part and finishing	12½c.	to 25c.

Daily Wages When Not Employed on Piece Work

Woman per day	7½c.	to 17½c.
Man per day	25c.	to 40c.

Average Cost of Material

	doz. pair
212 drums silket yarn	$ .37½
254.40 drums gassed cotton yarn	.30
117 or 138 drums silk yarn (wild)	1.00

Cost of Dyeing Yarn

Silket and gassed cotton yarn, $50 to $80 per 9.9379 lbs. (Black color is most expensive.)
Silk yarn (wild), $1.50 to $2.25 per 9.9379 lbs. (Black color), $2.50 to $2.75 per 9.9379 lbs.

Market Prices of Yarns at Osaka

Silket yarn $3.60 per 9.9379 lbs.
Silk yarn (wild), $19 per 8.2817 lbs.
Gassed cotton yarn, $2.90 to $3.25 per 9.9379 lbs.

Production per Day

Average striped pattern .... 1½ doz. or 2 doz.
Average plain pattern ..... 3 doz. or 3½ doz.

Work done by 3 women and 1 workman

Samples of the work done by hosiery makers under the above conditions are being forwarded from Osaka at the following sample wholesale price:

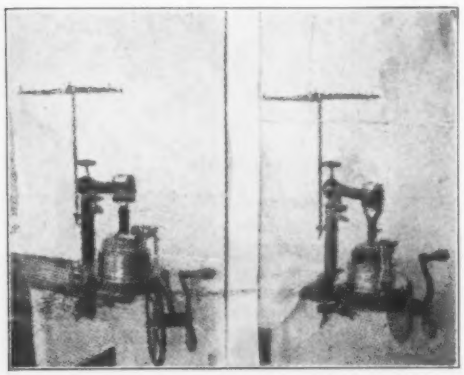


FIG. 4 FIG. 5

1. Silket yarn top heel and toe, Sakusan yarn foot and leg, 170 needles $1.55
2. Silket yarn top heel and toe, Sakusan yarn foot and leg, 170 needles 1.45
3. Gassed cotton yarn, 170 needles 1.05
4. Gassed cotton yarn, 170 needles 1.00
5. Gassed cotton yarn, 170 needles 1.05
6. Gassed cotton yarn, 170 needles 1.00
7. Gassed cotton yarn, 168 needles ..... .81
8. Gassed cotton yarn, 168 needles ..... .81
9. Gassed cotton yarn, 168 needles ..... .81
10. Gassed cotton yarn, 168 needles ..... .79
11. Gassed cotton yarn, 168 needles ..... .73
12. Gassed cotton yarn, 168 needles ..... .72
13. Cotton and wool mixed yarn, 170 needles, 1.35

The above prices are for 9, 9 1/2 and 10 inch, above 10 inch there is an increase of 10 per cent. in the price.

The following table gives the total production of different kinds of knit goods during 1911, the latest official statistics available:

Knitted Goods

Number of factories	1,053
Employes:	
Male	3,520
Female	4,358
Total	7,878

Knitted Underwear

Quantity	2,594,351
Value	$3,954,428

Hosiery

Quantity	1,762,382
Value	$620,717

Pantaloons

Quantity	311,647
Value	$5,141,612

The following tables will show in some detail the distribution of the knitted goods made in this Consular District, after the home consumption has been provided for. It will be seen that the bulk goes to British India, China and other adjacent tropical countries, the exportation to the United States being very small. Exporters say that the passing of the new tariff bill in the United States has brought no appreciable increase of orders yet.

EXPORTS OF KNITTED GOODS FROM KOBE, JAPAN

Cotton Underwear

1912	Quantity	Value
China ..... doz.	52,943	$87,105
Kwatung Province	962	2,424
Hongkong	522,198	471,178
British India	2,359,621	1,721,727
British Strait Settlement ...	94,989	56,701
Dutch India	303,324	143,944
French India	3,220	2,309
Philippine Islands	261,891	253,365
Siam	9,785	6,101
Great Britain	70,920	65,008
France	3,687	3,099
Germany	9,108	7,570
Italy	6,525	3,236
Turkey	15,465	13,585
United States	2,141	2,241
Peru	1,024	1,093
Argentine	738	526
Australia	43,958	43,252
Egypt	30,307	18,839
Cape Colony	44,603	36,338
Other Countries	66,402	53,585
Total, 1912 ..... doz.	3,903,811	$2,993,226
Total, 1911 ..... doz.	3,542,993	2,496,072

Socks and Stockings

1912	Quantity	Value
China ..... doz.	358,309	$168,956
Kwangtung Province	1,490	823
Hongkong	229,235	48,273
British India	250,818	77,650
British Strait Settlement	24,525	7,964
Dutch India	19,139	5,490

Philippine Islands	32,252	11,470
Siam	5,648	2,341
Great Britain	2,206	679
France	8,149	2,637
Germany	2,702	981
Italy	13,590	4,439
Turkey	28,815	10,331
Portugal	200	201
United States	880	338
Peru	4,556	1,765
Australia	122	515
Egypt	69,550	22,004
Cape Colony	1,798	1,207
Other Countries	26,336	8,463
Total, 1912 doz.	1,080,320	376,527
Total, 1911 doz.	1,063,563	346,039

TRACING DEFECTS IN KNIT GOODS

BY TRENTON

Some years ago I secured a position in a large underwear mill in New York State. There were about sixty old style machines of one make and a job lot of all other makes. None of them were run very fast so we managed to get a fair quality of work. I had a good second hand. A few large size frames were running on men's goods. After I had been there some time the superintendent called me into the cutting room and showed me a roll taken from one of these frames, which had a long string of holes. They did not look like needle holes, and certainly could not be caused by the yarn for they were about two inches apart and followed the same needle wale. Neither the knitter nor the boy who turned the cloth had noticed the damage. I told them to be more careful and watch their work more closely. The next day I was called in to see another roll from the same frame. This time the holes went from end to end of the roll.

I knew the holes were not caused by poor knitting for I followed the wale for several yards and the holes would run either one side or the other of a certain wale. This thing happened before in another mill, so the first thing I did was to look at the turning machine, thinking that the boy had set the guards too close to the spreader and that the holes were caused by running the cloth too tight. I had him turn one of the rolls and when I put it on the table the holes appeared. I went to the knitting frame and looked the cloth over again, and it looked good. The superintendent and I sat on the table and talked it over. A new idea occurred suddenly to me. I went back to the frame and stretched the cloth, looking carefully for cut stitches, and found them. A needle had fallen in the take-up rollers and had left a sharp burr on both rollers. When these burrs met they cut about two stitches, leaving them almost as close together as when knit. When the spreader of the turning machine stretched the goods these stitches were pulled apart, leaving a hole. This bad spot in the rollers was fixed and the trouble stopped.

The frames were the old style, most of them being four feeds and some 15 inch. They did not run over 40 revolutions, and had small take-up rolls with no stop motions. There were about seven different makes of machines in the room and we certainly had all we could do to keep them going. The worst feature was our inability to keep the widths right; some of the builders would measure from the outside to the outside of the cylinder, and still others would get their size from the inside of the cylinder. All of these gave enough trouble, but when a 12 inch was wider than a 13 inch from the same style of frame, we were in a quandary. Even the superintendent, an old timer, gave it up. The firm had bought these frames just as they stood, not knowing what was made on any certain size, or any cut of cylinder. This trouble can be explained by an incident that occurred in a Chicago mill years later.

I stopped at this mill one day and asked for a job. The boss said he did not need anyone, but if I could help the boss knitter he would keep me a week or so. This knitter was local talent and knew only what he had picked up during the few years he had worked around these frames. He had never seen any other frame and had no idea how a big Eastern room was managed. His cloth looked good, but the trouble lay in the sizes. As I remember, some of the 9 and 10-inch goods were as wide as an 11 or 12-inch. I knew at once what the trouble was and to explain to him, took a frame down and counted the needles. It was not

marked, but I believed it to be a 10-inch, cut 8 to the inch, 252 needles. For convenience I use standard cuts, as I do not remember the exact cuts. Another 10-inch was cut 9 to the inch, 282 needles. The difference between 282 and 252 is 30 needles, resulting in a wider garment, or as much as these 30 stitches measured. These 30 needles might measure an inch, perhaps a little more. We went through all the frames and found in the end that there were as many 8 cuts as 9 cuts, and that a new arrangement was needed to get uniform sizes. This could be done by using finer yarn on the 9 cut and knitting a little looser, but the proper way was to get the proper cut in all the frames.

To get back to the Brooklyn mill, our trouble lay in the different cuts, but we did not know it then. We picked out a set of what we thought would be about right and let it go at that. It was not until some years later that I learned the "why" of all these things. I also learned to figure how many needles ought to be in any given size for any certain cut. This was very simple and for the benefit of those not knowing will give an illustration. For example: The diameter of the circle is 11 in. (size of cylinder) $\times$ 3.1416 = 34.5576 in. (circum. of cylinder in ten thousands) $\times$ 4 (needles to the inch) = 138.23, or 138 needles. For a 11 cut, 8 needles, multiply the circumference by the number of needles, thus: 34.5576 $\times$ 8 = 276.45 or 276 needles.

The following table is useful:

AN IMPROVEMENT IN KNITTING MACHINES

This invention, for which a patent has recently been issued, relates to knitting machines of the cylinder and dial type, in which two sets of needles are employed for the production of a ribbed fabric, especially a double faced fabric having the back and front of different materials. The inventor states that in knitting a fabric of this kind on coarse gages, it is not necessary to have any special construction at the drawing or

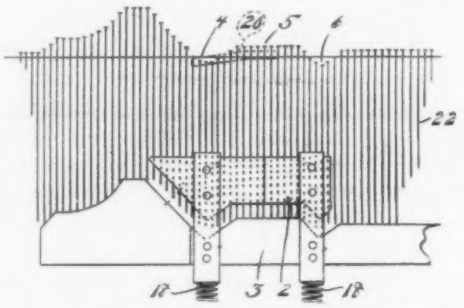


FIG. 1. POSITION OF A CYLINDER AND NEEDLES

casting off points of the dial or cylinder needles, as an ordinary rib knitting machine may be used for the purpose. In fine gages, however, it is impossible to use the ordinary construction for drawing in the full amount of loop used by the dial needles, which loops are drawn through the loops of the cylinder needles, as several needles would be drawing loops at the same time, and the increased or excess tension tears the yarn. This defect

Inch	4 to 1	5 to 1	6 to 1	7 to 1	8 to 1	9 to 1	10 to 1	11 to 1	12 to 1	14 to 1
7....	87	108	132	156	174	198	222	240	264	312
8....	99	126	150	174	204	228	252	276	300	348
9....	114	138	168	198	228	252	282	312	336	396
10....	126	156	192	222	252	282	312	345	375	444
11....	138	174	207	240	276	312	345	372	414	480
12....	150	192	228	264	300	336	375	414	456	528
13....	165	207	252	288	324	375	408	444	504	576
14....	180	222	270	312	354	396	444	480	540	624
15....	192	240	288	336	372	432	480	516	576	672
16....	204	252	306	354	408	456	516	558	612	708
17....	216	270	324	375	432	480	540	588	648	750
18....	228	282	342	396	456	516	570	624	690	792
19....	240	300	360	420	483	540	600	660	720	840
20....	252	318	384	444	504	576	624	690	768	888
21....	264	336	396	468	540	600	660	732	804	936
22....	282	348	420	492	552	624	690	768	840	984
23....	288	372	444	504	588	660	732	804	876	1008
24....	300	384	456	540	612	690	768	840	912	1080
25....	312	000	000	000	000	000	000	000	000	1125
26....	000	000	000	000	000	000	000	000	000	1170

TABLE FOR ASCERTAINING NUMBER OF NEEDLES IN GIVEN SIZES OF DIFFERENT CUTS

is remedied by using the needles as jacks to supply the amount of yarn needed by each needle. This result is obtained by holding the latches of the needles closed by means of a guard, so that they draw the loops to the extent necessary to produce the fabric, before the loops are interknit and cast off.

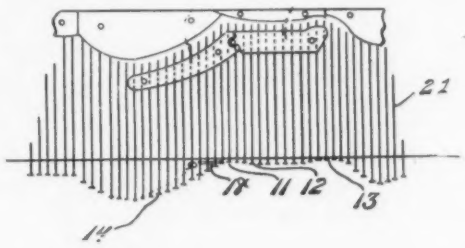


FIG. 2 A PORTION OF THE DIAL AND NEEDLES

Fig. 1 shows a portion of the cylinder and its needles; Fig. 2, a portion of the dial and its needles. Fig. 3 is a perspective view of a part of the machine. Fig. 4 is a vertical section on the line 4—4 of Fig. 3.

The yarn, a and b, is supplied to the machine by any suitable means. The

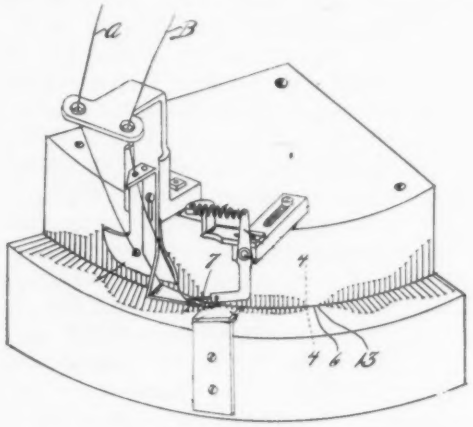


FIG 3. A PERSPECTIVE VIEW OF PART OF THE MACHINE

former, a, is laid along the cylinder needles and the latter upon the dial needles, the cylinder needles being indicated at 22 and the dial needles at 21, carried in grooves to reciprocate in the usual manner.

Referring first to the action of the cylinder needles, the yarn, a, is taken in at the eye of the yarn guide and laid across the raised ends of the needles. It is taken in by the hooks as in any ordinary machine. The cams are mounted on a cam cylinder and the needles are first drawn down by the cam drawing the thread or yarn down over the dial needles, which are then advanced, at a point (Fig. 2) back of the open latches of the dial needles, to the low point indicated at Fig. 1, just below the upper edge of the cylinder. At this point the old loops or partly complete stitches are cast off of the cylinder needles, and new loops are

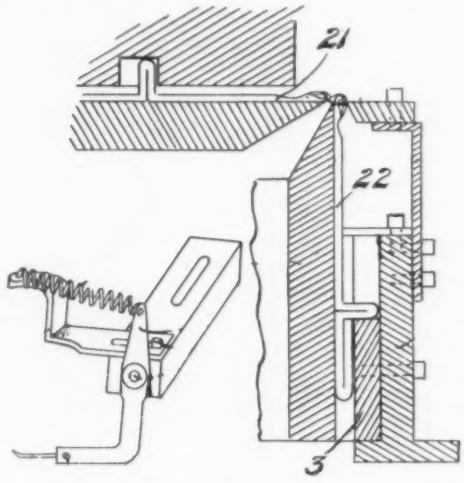


FIG. 4. A VERTICAL SECTION OF THE MACHINE

formed by said needles with the new yarn so taken in. The cylinder needles are then forced up by the cam to a point above the edge of the cylinder as shown.

As the needles draw down the latches are closed and held closed by a latch holder, so that the needles act as blades for forming loops or sinking to a certain extent, the yarn of the dial needles. After the dial loops are formed, while the cylinder needles are at point 5, the cylinder needles are drawn down by the cam, Fig. 1, and the loops taken in at the point, 4, are formed into complete stitches at the point indicated at 6, Fig. 1. The loops cast off at point 4 cannot be formed into complete stitches until free from the dial needles, that is, until the remainder of the loops formed at point

4, are cast off by the dial needles at the point 6, the dial needles being advanced between the cylinder needles between points 4 and 6.

The cam, 3, in connection with the latch holder holds the cylinder needles up to form blades while the dial loops are being made.

The yarn, b, is laid on the dial needles by the separate yarn guide having an eye for the yarn. The needles are then drawing in from the point, 14, Fig. 2, to the point, 11, by action of the cam, and the needles start to draw back at said point, 14, after the yarn of the cylinder needles has been looped by action of the cam over the dial needles at points back of the latches of the dial needles, which are open at this point, and when the dial needles draw back of the feed point, 17, the latches thereof are closed by means of the latch closer and holder which, as shown in Fig. 3, rests with spring pressure on the needles at the point, 18, Fig. 2. As the needles draw in at this point the latches are closed over the yarn taken in at the eye. The latch closer relieves the strain on the yarn by closing the latch, instead of using the yarn to close the latches as in ordinary machines, and holds the latches closed until the needles are retracted beyond the same. At the point, 11, Fig. 2, the yarn of the dial needles is drawn around the closed latches of the cylinder needles, then at the point, 5, Fig. 1, and those needles act as jacks for the purpose of drawing the necessary amount of yarn to form the loops of the dial needles. By means of the cam the series of loops are held at the point, 12, and finally drawn into stitches at the point, 13, opposite the drawing in point, 6, of the cylinder needles; after which both sets of needles are advanced for the next operation in the usual manner. It will be seen that in consequence of this operation the cylinder needles, when advanced to the point, 5, act as blades or sinkers for the yarn loops of the dial needles, and the dial needles, when advanced to the point, 12, act as blades or sinkers for the yarn loops of the cylinder needles. Each set of needles is thus advanced to serve as sinkers for the yarn loops of the other set.

VARIATION IN LENGTH OF HOSIERY

BY FUSTANELLA

I have read with amusement "Cipango's" reply to "Booth" (2247) in the December issue in regard to the variation in the length of hosiery. "Cipango" states that machines after being properly set for one size should not vary except from the variation in the silk or cotton used, and that this should be slight. This is only one small factor in the cause of variations in hosiery lengths. As a matter of fact any experienced knitter who has studied the causes of these uneven lengths, must have discovered several other causes besides the variations from the size and quality of the yarn used. I wonder if "Cipango" has ever noticed the marked difference in the lengths of hose due to the size of cones or bobbins used, when all other conditions were equal. If there are any doubtful ones among the readers of this article, let them take two cones of the same number of yarn, one full size and the other less than half full, put up the full one on a machine that has been adjusted to the size wanted, run off a stocking and board it out. Then, without making any changes on the machine, put up the smaller cone and, after running off a stocking from that, put it on the same board and note the variation in the lengths. This question and its answer takes me back to the time when the bottle bobbin was in universal use in most of the large hosiery mills in the country, and to the time when, as foreman, I was called upon to explain to the manager why this variation existed. The manager on being told that it was due almost entirely to the size and shape of the bobbin he was using, ridiculed the idea and told me I did not know what I was talking about. But after being an interested watcher of a machine making two stockings from the same number of yarn, one made from a full bobbin and one from a bobbin two-thirds empty, then finding fully four inches' difference in their lengths when boarded, he came to the conclusion that that was the secret of the variations.

Another cause for these variations of length is found in the speed of the machine.

Any expert on seamless hosiery knows what an important part speed variations play in governing the length of hosiery. For instance, a number of machines running at 200 revolutions per minute will make a shorter stocking than one running at 250 or 275 revolutions, all other conditions being equal. This is due to the fact that the needles in some machines are not backed up as snugly against the bedding cam as the ones in the next machine and for that reason, the added momentum given by the increase in speed, will send the first named perceptibly lower, thus forming a longer stitch and, of course, making a longer stocking. This is more noticeable on machines that have been run for some time and have an excessive clearance, or in the case of a machine that has been set up with an excess of clearance.

AN IMPROVED NEEDLE FOR KNITTING MACHINES

The needle shown in the accompanying illustration and which has recently been patented, is made with a shank that extends above and slightly below the butt and a spring depending from the lower portion of the shank and offset from the plane of the rear edge of the needle. A space is thus provided between the inner edge of said spring and the inner wall of the groove when the needle is in operative position. By extending the shank slightly below the butt, a bearing point is provided so close to the butt that improper outward movement is prevented.

Fig. 1 shows a side elevation of the improved needle and a partial view of a portion of a cylinder with the needle in place. Fig. 2 is a view of the parts shown in Fig. 1 in a slightly different position. Fig. 3 shows a front elevation of the needle.

When the spring is in substantially the same plane as the rear edge of the needle, and any pressure or tension is exerted on the needle, which sometimes occurs to cause the upper portion of the needle to move outwardly, the lower end thereof and the spring are forced against the rear wall of the groove in which the needle is situated, causing a binding of the spring. When the lower portion of the spring is forced into engagement with the inner wall of the groove, it will result in moving the butt too far out, that is, into such a position that it touches the inner wall of the cam cylinder. This is not only injurious to the cylinder but will also bend the butt, spoiling the needle. The improved needle invention is designed to overcome this defect.

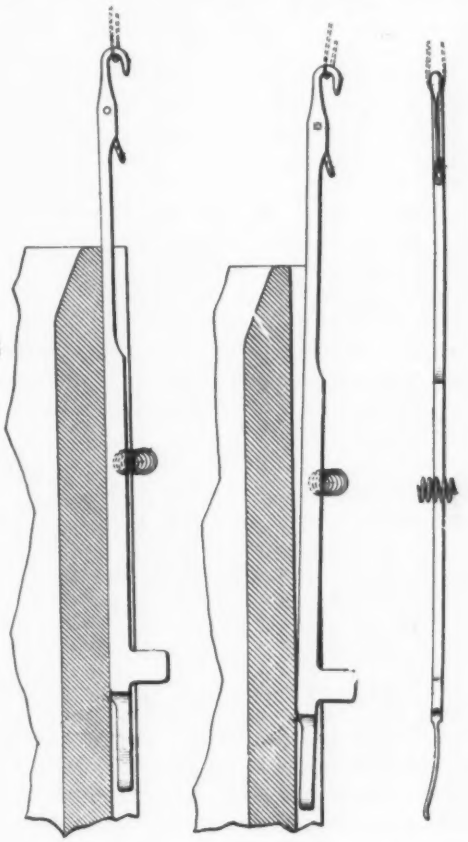


FIG. 1 FIG. 2 FIG. 3

During the year ended October, 1912, imports of sheep's and lamb's wool into the United Kingdom amounted to 819,856,538 pounds, of which 346,065,616 pounds were reexported, 82 543,970 pounds of the reexported wool being sent to the United States.

Dyeing, Bleaching, Finishing, Etc.

HINTS ON STARCHING AND FINISHING COTTON PIECE GOODS

BY DEMAIN

Very often a poor grade of goods with a good finish will sell well, but a fine and well constructed piece poorly finished will not sell at all. I was once working in a mill where they were manufacturing a fine line of dress goods. The first lot finished was white goods and we thought they were all like the sample we submitted to the commission merchant, but the sample was superior to the finished lot. The first sample was well singed and blued, while the finished lot was not singed. The whole lot was sent back to us and we singed and blued it to match the same.

We then began to finish a popular line of imitation linen used for dress goods as follows: Starch them with white dextrine (125 pounds to 100 gallons of water). Dry them on the cans and dampen them heavy. Let them lay over night and in the morning chase them once on each side as chasing on the calender is the nearest imitation to the beetle finish, which is used for pure linen. When the goods were chased twice on a 6-bowl chasing calender they looked good, but the linen feel was not there, so the next starch mixing was made with 75 pounds of white dextrine and 50 pounds of corn starch to 100 gallons of water. After they went through this starching mixture, then dried and damped, we chased them on the 6-bowl calender and they came off much better.

The next time we had this line to finish the goods were white for sample cards, so here was our chance to do a really good piece of work. These goods were used for girls' and boys' suitings and ladies' shirting and were very popular. When the goods were ready for starching we tried another formula for starching, using 125 pounds of corn starch to 100 gallons of water along with 8 pounds of a good softener. We chased the goods twice and they came out fine. We had all the orders we could handle. I find there is nothing better for the imitation linen than corn starch in place of the white dextrine. The blueing is left to the starcher's judgment, but I find that 6 ounces of Ultramarine Blue is enough for 100 gallons of starch mixture.

There are many starchers who have no fixed rule for preparing starch. Some go by so many pailfuls, but this is an unsafe practice. Suppose we are finishing a line of goods and starching them with 5 cans of starch. When one lot is finished we may want to starch more heavily from a new lot of starch that is a little softer or harder. Five pails of the old starch may be 20 per cent. stronger than the five pails of the new. I find the following method to be a good one to follow: Put so many pounds of starch in the starch tub, the tub holding say 150 gallons. Add the water and keep stirring it, testing with the Twaddle hygrometer. Bring the starch to the strength desired, say 8° or 10° Tw. Make a record of the strength in the formula book, so that when the same kind of goods are to be starched again the same mixture can be used.

The mixture must be uniform and all the finishing materials well mixed together. It is difficult to mix clay, chalk and minerals thoroughly, as they are heavy and apt to sink to the bottom of the solution. When ready to make the starch put in enough water and then add the starch, stirring well, when the heat is applied. Good results cannot be obtained from boiling starch to a certain temperature, say 140° to 150° F. I find the best results are obtained when the starch is even and clean. It should run evenly when poured from the dipper. After the starch is made and a softener such as clay, mineral or wax, etc., is to be used, the oil or softener is first added, then glue sizes and paraffine wax, stirring the mixture well all the time. The last thing to add is the

mineral, clay, the chlorides and salts, such as magnesium and zinc chloride. Paraffine wax is hard to handle. The starcher has to be very careful to make a solution of it before it is put in the starch. The amount of wax to be used is put into water in a pail, which is set in water in a barrel. Boiling the water in the barrel will melt the wax in the pail. To keep the wax in solution put it over the cans in a clean place or keep it over some steam pipes. Do not heat it over 130° F. The reason why wax is a hard material to use in starching is because the starch mixing has to be kept hot all the time. It is a good plan to have an inch pipe put in the mangle box with holes in it about 1 inch apart. When the starch mixing is ready to use, start the mangle, open the steam pipe and let the water out, putting on the steam and letting the mangle run for 3 to 4 minutes before the goods are run in. Wax should be well prepared before using. If anything is wrong the goods will have to be stripped of the starch and size and the wax will cause a lot of trouble for it is very hard to get out.

Finishes obtained from wax are soft and generally very desirable. It is a fine substance to put in a certain goods used for curtains. Some finishers use stearic acid or glycerine in place of the wax, but I find better results are obtained from paraffine. As most starchers know, some softeners are hard materials to use, while others are very easy. Cocoanut and castor oils are the softeners generally used. They are very good, but oleine oil and various other softeners made from these oils are more difficult to handle. Another hard material to use in the starch is China clay. I find it just as easy to use as some of the other materials, but there are a great many starchers who do not know how to use it. In a bleachery where China clay is used and there is a lot of filling work to be done, a clay mill should be installed for mixing the clay. Steeped clay is the best to use, boiling it before using. Boiled clay is the best to use for any starching. Dry clay on a friction starch mangle will give very poor results. It is all right to use a little dry clay in finishing and starching providing it is not done on a friction starch mangle. Following is a recipe for a good clay paste: Put 30 gallons of water to 1 bag of clay, making 40 gallons altogether. Many starchers use talc instead of clay, but talc is all right for some finishes and very poor for others. Following is a good clay mixing for white or colored goods, but not for prints. In starching prints it is best to get the finish with Epsom salts, Glauber's salt or glucose, for clay deadens the colors: Twenty pounds of potato starch, 20 pounds wheat, 10 pounds corn starch, 40 gallons of clay mixing, 1 bag of clay to 30 gallons of water.

Following is a formula for clay filling: 125 pounds corn starch, 10 pounds wheat starch, 75 pounds sago starch and 175 pounds clay, making 200 gallons for filling 64 by 64 cambrics. If colors are being filled, color must be added to the starch mixed. For white goods blue must be added. Ultramarine blue is excellent for blueing clay mixings because the clay is sometimes of a poor color and the clay manufacturers often use this blue for shading it. The clay frequently has a yellowish cast, in which case it contains iron and will have to be carefully watched.

BLEACHING WITH PERBORINE

BY GRANICUS

The first oxygen compounds which price permitted for consideration in mill use were the peroxides, and the good results which have been obtained with these compounds and their method of application is now so well known, that it does not need to be commented upon here.

During the last two years the price of perborate of soda has come down considerably and experiments which have been made to use this compound for bleaching have proven very successful, and it certainly deserves interest on account of its simple method of application.

Perborate of soda appears on the market under the name Perborine. It is an odorless white crystalline powder, which is noninflammable and can be stored without

danger of explosion. It will not lose in strength unless stored in a rather hot place. In solution perborine will only disengage oxygen while hot, so that no loss occurs when letting the cold or lukewarm bleaching bath stand.

To bleach with perborine it is only necessary to dissolve the required amount of it in the liquor, heat up the bath, enter the goods and when a good white has been obtained, lift and rinse them. The strength of the bath to use depends upon the degree of resistance offered to the Oxygen by the natural coloring matter on the fiber. The average amount to use for 100 pounds of material is from six to eight pounds, correspondingly less for the succeeding baths.

The bleaching may be done in a vat of white wood, stone ware or enameled metal. It is best to keep all metal except lead out of contact with the liquor. The coils for heating the liquid indirectly with steam, should be made of lead.

Vegetable fiber goods are entered in the bleaching bath at 212° F., animal fibers at 200° F. When bleaching cotton the goods must first be boiled out thoroughly to remove the natural grease and other impurities which adhere to the fiber mechanically. When bleaching silk or half silk the material is boiled out before bleaching with a good olive oil soap, free from alkali. When any of the perborine remains in the bath undissolved, it will in no way harm or tender the goods, although it may come in contact with them. Tendering in spots and turning brown of the silk does not occur when using perborine. Tussah silk is boiled out with 3 per cent. soda ash, then entered in the bleach bath and afterwards rinsed in a bath acidulated with muriatic acid.

As bleaching with perborine is an oxidizing process, the goods are not tendered and they do not turn yellow after a good white has been obtained, as the oxidized natural coloring matter has been removed from the fiber by rinsing the goods. They are left with a soft handle and retain elasticity and tensile strength.

IDENTIFICATION OF DYESTUFFS ON WOOLEN FABRICS

BY SEMINOLE

Among the dyestuffs used on wool goods are basic colors, principally on light colored yarns for knitting; but acid colors, by which the bulk of wool is dyed; substantive, chrome, indigo, vat and the natural dyewoods, such as logwood. Cochineal is still met with occasionally.

Basic colors are stripped from the fiber with boiling alcohol. By boiling off the excess of alcohol and adding water, a piece of tannin mordanted cotton may be dyed. Substantive colors on wool may be detected by boiling with ammonium hydroxide. The color is stripped to a large extent. Acid colors will also discharge to some extent, but to distinguish the direct from acid colors, boil a piece of cotton in the ammonium hydroxide solution and the cotton will acquire a pronounced shade. Acid colors will not dye the cotton, but by acidifying the ammonium hydroxide solution, they can be used upon wool.

Certain of the direct reds are used extensively on woolen goods, but may be detected by boiling in 3 per cent. sulphuric acid with white cotton. The direct colors if present will become changed in shade, while an acid red is fast to acid. This test should be used only in conjunction with the test for substantive colors given previously.

Some of the acid colors possess very good fastness to ammonia and it is sometimes impossible to obtain a deeply colored solution with ammonia. One color in particular, sulphoncyanine, is used very extensively as a bottom and also straight for dark blues. It has a very characteristic spot with nitric acid, a bright orange being produced. This color by its fastness is often confused with alizarine blue, but possesses a fastness to the peroxide bleach which alizarine blue does not have. All acid and substantive colors on wool may be discharged with hydrochloric acid and tin crystals.

Alizarine colors are, without exception, much faster to the tin crystals discharge. If an alizarine color is suspected, test for the

mordant used by qualitative analysis is as follows:

Burn a portion of the fabric in a porcelain crucible and heat strongly to drive off organic matter. The residue is mixed with about four times its bulk of potassium and sodium carbonates. Use the chemically pure carbonates, fused with a blow torch. The resulting mass is dissolved in water and acidified with acetic acid. Boil to remove carbon dioxide, as otherwise a white precipitate would be formed in the later tests. After the carbon dioxide has been removed, add to a small portion a few drops of lead acetate. A yellow to orange precipitate will indicate the presence of chromium on the fiber. Add to another portion a few drops of potassium ferrocyanide. A brown precipitate, insoluble in acids, but decomposed by ammonia, is a very delicate test for copper. Copper, however, is very seldom met with except in certain blues and logwood blacks. To test for iron, add a few drops of nitric acid and boil a few minutes. Then add a little potassium ferricyanide solution. A blue precipitate indicates iron. Aluminum is detected as follows: To a small portion of the fused mass solution add hydrochloric acid until barely acid (a drop or two as the solution is already acidified with acetic acid) and then add ammonium carbonate slowly. A white precipitate is an indication of aluminum. If iron is present it will mash the reaction for aluminum. The iron must then be separated before testing for aluminium. It might be that an indication of alumina would be shown, if the wool had been carbonized by the alumina process.

Tin is rarely met with and possibly only in cochineal scarlets. To identify tin fuse a sample as before and boil in strong hydrochloric acid to dissolve the residue. Add caustic potash and filter if a precipitate occurs. To this solution add a few drops of silver nitrate in ammonium hydroxide solution. A black precipitate of metallic silver indicates tin.

The so-called indigo spot produced with nitric acid is no longer a sure test for indigo. There are a number of coal tar products which give yellow spots very similar to indigo. Indigo is sublimed by heating a portion of the fabric in a test tube. The indigo will collect on the top part of the tube.

Any of the vat colors may be detected by reducing hot with hydrosulphite and ammonia and reoxidizing by exposure to the air. Also by their fastness without the presence of mordants. Logwood is very sensitive to mineral acids and on boiling a red coloration takes place, which is quite characteristic. There are many tables which give reactions on fiber of each individual color, but they are not of much value, so shades are seldom produced with one product. For this reason the most we can hope to do is to determine the method by which the material has been dyed.

DIFFICULTIES AND IRREGULARITIES IN DYEING

BY DR. LOUIS J. MATOS

The principal source of difficulties encountered in the dyeing of piece goods, and occasionally yarns, may be traced in a great measure to unintentional lack of attention, and in some instances carelessness on the part of the workmen or kettle-hands having to do with the manipulation of the material being dyed, and in other work around the dyehouse. Unevenness, as a general rule, may be traced in the majority of instances where it is noticed, to an insufficient preparation of the material to be dyed. As a rule, woolen goods or half-wool goods show inequalities where the preliminary scouring of the pieces has been incomplete, or in cases where it is believed to have been thoroughly done, to insufficient time in the rinsing. It is a fact that soap remaining in the goods after scouring tends to cause clouds or other shaded places. An excessive quantity of goods handled at one time in the washers prevents free circulation of the wash waters in and around the pieces so as to remove the soap residue. Of course, where the washers are crowded, and the water used is somewhat hard, an insoluble lime soap forms in the creases or folds of the goods and becomes so firmly fixed that streaks running lengthwise with the pieces become very prominent after dyeing.

It is not the purpose to discuss the advantages of soft water for scouring or dyeing, as this important subject has been frequently touched upon during the last few years by water engineers and chemists. The fact cannot be evaded that the use of soft water tends to the production of better grades of fabrics, not only in the clearness of the colorings, but in the levelness of shade and softness of handle. The preparatory scouring of woolen piece goods in particular calls for sufficient time in the soap to effect a complete solution of the spinning oils. Too short a time in the scours will not cause these oils to be properly dissolved. Whether or not the rinsing has been perfect afterwards, if the spinning oil has not been completely emulsified beforehand no amount of rinsing will remove it. The choice of soap varies, of course, with the quality of the goods that a mill makes, and the better the grade of wool used in the given fabric the higher the quality of soap is necessary. Without doubt potash or soft soaps are most efficient, but owing to their somewhat increased cost over hard soaps they are not generally used. Soda or hard soaps seem to have the call, but they cause difficulties when used with waters containing either lime or magnesia.

Another difficulty encountered in some mills and which shows prominently in the form of clouds or uneven patches on piece goods, is to be traced directly to a more or less incomplete solution of the dyestuffs. All dyestuffs do not dissolve at the same rate nor at the same temperature, and it is a mistake to believe that the same quantity of dyestuff will dissolve in the same volume of water. Sufficient hot water should always be used to insure all the dyestuff dissolving within five, or at the most ten minutes, and without the necessity of bringing the water to the boil. Good hot water will generally be found quite sufficient to dissolve nearly all classes of dyestuffs used in dyeing cotton or wool goods, except certain vat colors and some of the sulphur colors that dissolve only with the aid of chemicals. Unevenness from incomplete solution of dyestuff is traced directly to particles or lumps of dye being carried mechanically into the dye kettles after the pieces have been entered. In dyeing piece goods the dye should always be added in the form of solution and while the pieces are in motion. Some mills will not permit the addition of dyestuffs to a kettle without first straining the liquor through a fine sieve. This should be the invariable rule everywhere.

It sometimes happens, particularly in woolen mills, that off shades are occasionally encountered, which are extremely difficult to account for, especially in the dyeing of those classes of goods with dyestuffs that require a chrome mordant. The amount of chrome used as a mordant when applied to the goods before dyeing should bear some direct proportion to the amount of dyestuff to be used subsequently. If we use an excessive quantity of chrome, "over chroming" results, which, besides having a partially injurious action on the wool fiber, also causes a partial destruction and consequent loss of some of the dyestuff, causing shades that were not at all contemplated by the dyer. Many chrome mordant dyestuffs when dyed on wool without the aid of chrome, produce shades quite different from the shades produced upon properly mordanted wool, consequently if an insufficient quantity of chrome has been used, a contrary effect is obtained consisting of the amount of chrome on the pieces taking up its equivalent amount of dyestuffs to produce the proper shade, while the excess of dyestuffs in the bath in excess of the proper amount of chrome only tends to throw the shade entirely off from the one desired. When attempts are afterwards made to correct this difficulty by a further chroming the result is never very satisfactory. Chrome mordanting or after-chroming offers no difficulties when the preparations of dyestuff and chrome are carefully considered. Those dyes belonging to that peculiar group of coloring matters that are permanently fixed upon wool by the use of chrome in the dye bath during the dyeing come under the same grouping.

We are sometimes confronted with irregular pieces coming at various intervals and which seem to completely baffle the dyer's attempts to ascertain the cause. The dyes, the mordants and assistants used remain the same; there is no known change in the stock of which the goods are woven; the water used is practically the same; and yet at intervals the routine of the dyehouse appears to be upset by pieces coming out that show up badly in the finishing room. As a general rule when the irregularities have disappeared we forget for the time being the trouble that did exist and we dismiss it from our minds, but later pieces show a recurrence of the trouble. It is when such irregularities suddenly reappear that a careful investigation of all the conditions surrounding the dyeing should be made and the goods followed from the stock room through the scour house, dyehouse and into the finishing room.

In instances where this practice has been put into effect it has generally been found that the trouble was due to a lack of cleanliness somewhere; that the trucks, cribs or hand-barrows have not been thoroughly cleaned; that the cribs where the pieces are folded in when they come out of the dye kettles have been allowed to stand around the dyehouse for intervals without being washed before use; that sometimes goods dyed with acid have not been thoroughly washed out, but were allowed to lie on benches afterwards occupied by pieces dyed with colors susceptible to the action of weak acid. Sometimes it has been found that in cleaning the shafting running through the mill, oily flocks and waste have dropped on the pieces which caused spots that could not be removed. Sometimes in carrying pieces from one part of a dyehouse to the whizzers, they have been unconsciously dragged past iron columns that were somewhat rusted, which caused stains that became permanent. In well-regulated dyehouses where attention is paid to these minor details, such troubles seldom occur. In dyehouses where the fixtures are kept in thorough repair, where the iron structures or wooden posts are occasionally painted, and where the floors are kept in good repair, such difficulties will seldom be encountered.

During the actual dyeing of piece goods the steam is sometimes responsible for an irregular run of pieces. The amount of steam supplied to a dyehouse may have an influence upon pieces. Sometimes where a battery of dye kettles is supplied by a steam pipe the first kettle to get the benefit of the steam has been found to show fuller shades than kettles supplied at or near the end of the pipe line. The proper heating of piece dye kettles is also a matter of some concern. The blowing of steam into the dye liquor should be done in such a way that the force of the steam should be evenly distributed, rather than striking one side of the kettle with greater force than the opposite side. In large kettles this fact has been sometimes overlooked and the jet of steam blowing into the dye liquor strikes the end piece of cloth with greater force than the others and in consequence raises the temperature near such pieces quicker than if the steam was evenly distributed. The result is that such pieces on the end invariably come up a fuller shade than the pieces in the center and at the opposite side of the winch.

Hasty or careless matching of shades is sometimes responsible for off shades, other things running in the dyehouse smoothly. It is a fact that in running on a large order the shades matched in the morning against the standard will show sometimes differently when again compared in the afternoon, while shades matched in the afternoon will frequently not match samples cut from pieces passed by the dyer in the morning. As a rule the sample against which the dyer is matching is either of unknown origin or the kind and character of dyes used upon it are unknown, which greatly complicates the dyer's results. By careless matching it is not presumed to mean the dyer's indifference to his results, but rather to the fact that on large orders for a single shade of goods on approximately the same quality of cloth, overconfidence gives rise to a certain degree of familiarity bordering on carelessness. One cannot be too careful in match-

ing and it is useless to attempt to match shades successfully unless every regard is paid to the source and kind of light necessary. The dyer should be supplied with a sufficiently large matching room with a window of sufficient size to permit an ample flood of good north light. The matching table should be ample in size and covered with a non-reflecting dull black cloth on which the samples and pieces to be matched are laid. Without such an adjunct to the dyehouse, uniform results should not be expected. A frequent cause of trouble occasionally met with in some dyehouses is called "bronzing", and the complaint has been sometimes made by dyers that some dyestuffs bronze while other dyes do not bronze. It is quite true that any dye if used in a sufficiently strong solution will show a bronzed effect. The dyes themselves when viewed under a magnifying glass almost invariably show a metallic reflex, which points conclusively to the fact that if a dyed fabric shows a bronzed effect, we are safe in concluding that the surface of the fabric contains minute particles of crystallized dye that have not been actually taken up by the fiber. This may be readily seen by the careful inspection of a drop of red ink that is allowed to dry upon a piece of glass or upon a piece of glazed paper. Such a dry ink spot will show a peculiar greenish reflection characteristic of the red aniline dye of which it is made. Bronzed effects on fabrics may be traced directly to too much dye in the bath, or not enough water. When these two conditions are present, combined with the temperature necessary to effect the dyeing, a sudden deposit of dyestuff from the bath takes place and a deposit of dye occurs instead of the fabric being actually dyed.

Uneven results are said to have occurred by permitting partially dyed fabrics to remain exposed to the sunlight, and which is believed to have an active chemical influence upon the goods in process. This may not apply to all classes of fabrics or dyes, but it is a fact that uneven results are traced to this cause during the dyeing of cotton by the diazotizing or three-bath process. This is easily demonstrated if we take two skeins of cotton yarn and dye them in the usual manner with primuline and common salt, afterwards washing and passing both skeins through the usual acidified nitrite of soda solution. Next rinse and immediately develop one of the skeins by passing through an alkaline beta-naphtol bath, when the characteristic red color of the primuline dyeing appears.

Allow the second skein to remain hanging in the sunlight for a few minutes and then pass it through the beta-naphtol bath, when a decidedly uneven result will occur, which teaches us that diazotized primuline is decomposed by sunlight. The same principle consequently will apply to every other diazotizable color if allowed to lie around a dyehouse for an indefinite length of time after being diazotized.

The last and by no means less important consideration contributing to uneven dyeings is a defective mechanical equipment. Mills attempting to turn out a regular line of uniformly dyed material cannot hope for uniform success unless its mechanical equipment is perfect or nearly so. Perhaps the most common cause of trouble in dyehouses is due to defective belts. It is a common custom in many mills to send all belts that have outgrown their usefulness in other departments to the dyehouse under the mistaken notion that it is a stroke of economy to use them up there, but a smoothly running dyehouse, where the dye kettles must run at a uniform speed, calls for belts in prime condition. Another point to be considered is the placing of hangers so that the drip from the oil cups will not fall upon the kettles or upon pieces waiting their turn to be dyed. The method of cleaning shafting in dyehouses and finishing rooms should be so regulated that no pieces should be lying around when the cleaning is done. It might be an advantage in many dyehouses to hang on the shafting the inexpensive cardboard or metal discs that automatically keep the shafting clean and bright.

These appear to be small details, but taken together they have a marked influence upon the quality of the output of a mill. It is only by paying attention to these apparently minor details that uniformity of output can be insured.

FIREPROOFING OF VEGETABLE FIBERS

BY GAUL

As all the vegetable fibers have practically the same chemical composition the process of rendering them incombustible is the same for cotton, flax, jute and hemp. The process for making them fireproof, even after washing, consists of impregnating with certain salts. It is difficult to treat the fibers so that they will remain indestructible after washing, and in any case this quality of incombustibility is but temporary. One of the most common methods consists in immersing the goods in a solution of alum or starch and alum, after which the material is dried. This process fills the cloth with loose dust and the resistance to fire is completely lost by washing. Another method consists in immersing the cloth in the following solution:

Water	40 parts
Phosphate of ammonia	3 parts
Chlorohydrate of ammonia	2 parts
Sulphate of ammonia	1 part

When dry the cloth burns much more slowly. All these materials, however, are soluble so that the resistance to fire disappears on washing. Tungstate of soda is also used for this purpose, but its extreme solubility prevents its general application. The greatest difficulty is to find a substance which will render the material inflammable and which at the same time cannot be removed by washing or friction. Bradbury & Perkins, of Manchester, used for this purpose a mixture of tungstate of soda and alum. The cloth treated was found to resist fire as well as asbestos does, but this quality disappears on washing. Another experiment consisted in treating the fabric with a mixture of tungstate of soda, sulphate of ammonia and acetic acid, and then steaming. The resistance to ignition in this case did not disappear after a number of washings. Tungstate of tin and zinc give satisfactory results and stannate of soda has been used, also chloride of zinc, but the results were lost on washing the goods.

Another process consists in soaking the cloth a number of times in a solution of stannate of soda, then in a solution of tungstate of soda, tungstate of zinc and acetic acid. The effects withstood a number of washings, but the fabric possessed the disagreeable odor of vinegar and carried an excessive amount of humidity. Moreover the process is very expensive.

Unfinished goods can be impregnated with stannate of soda, then passed through a bath of chloride of tin. In this case the results were permanent. The process recommended by Wipps & Todd of Manchester, consists in soaking the goods in a solution of stannate of soda at 27° Be. The cloth is then extracted and dried on copper cylinders and immersed in a solution of sulphate of ammonia at 10° Be., extracted and dried. The goods are rinsed to remove the excess of ammonia and dried in the ordinary manner. The results were satisfactory except that the process is very expensive on account of the high cost of tin.

BLEACHING KNIT GOODS

Editor Textile World Record:

I am having considerable difficulty in securing as soft a bleach on cotton yarn for underwear as I require. The goods bleached by me knits up wider than that when bleached by an outside concern and also makes the garment appear to have been knit on a coarser gauge machine. Do you think this is due to the method of boiling preparatory to bleaching? Which is to be preferred, an open boil or a pressure boil? My yarn seems to possess a slight harshness or scroop which I am unable to detect in the yarn that comes in from the outside. I enclose a sample of knit goods bleached by my process and one bleached by an outside process. Both pieces were made from yarn bleached in the skein. I give the yarn a regular caustic boil at high pressure and use the slow method of bleaching. I know the pressure boil is superior to any other for many purposes, but I am inclined to think an open kier boiling is better for this kind of work. I use regular softener in the finishing. Do other bleachers get better results with something else? How can I increase the elasticity?

Landrum (2280).

The sample bleached by "Landrum" is quite harsh and this harshness is due to too much alkali either in the boil or in the finishing of the soap. If the yarn is taken from the dryer before it has had time to thoroughly cool it will have a tendency to spoil the elasticity of the webbing.

Mohegan.

Dye Recipes

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 26

RED ON WORSTED YARN

Fast Red 2713 on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Acid Green Y Y.
(Innis Speiden & Co., 46 Cliff St., New York, N. Y.)
10 lbs. Glauber's Salt.
2 lbs. Sulphuric Acid.

Enter at 120° F., raise to a boil, and dye at a boil for one hour.

Fast Red 2713 is a level dyeing acid color, well suited as a self color and for the production of compound shades.

Recipe No. 27

NAVY BLUE ON WORSTED YARN

Acid Navy Blue B on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Acid Navy Blue B.
(Innis Speiden & Co., 46 Cliff Ct., New York, N. Y.)
10 lbs. Glauber's Salt.
2 lbs. Sulphuric Acid.

Enter at 120° F.. bring to a boil, and dye at a boil for one hour.

Acid Navy Blue B will be found an excellent color for the production of navy blue shades.

Recipe No. 28

BLUE ON WORSTED YARN

Neptune Blue B R Extra on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Neptune Blue B R Extra.
(Badische Company, 86 Federal St., Boston, Mass.)
4 lbs. Sulphuric Acid.
15 lbs. Glauber's Salt.

Enter yarn at 140° F., and dye at a boil for one hour.

Neptune Blue B R Extra will be found to be a very desirable color for the production of fancy shades on piece goods.

Recipe No. 29

YELLOW ON WORSTED YARN

Fast Wool Yellow G L on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Fast Wool Yellow G L.
(Kalle & Co., 530 Canal St., New York, N. Y.)
1 lb. Sulphuric Acid.
10 lbs. Glauber's Salt.

Wet the yarn out and enter at 105° to 125° F., bring slowly (in about 30 minutes) to the boil. Boil 45 minutes and add

1 lb. Sulphuric Acid

and boil another 30 minutes.

Fast Wool Yellow G L possesses exceptional fastness to light.

Recipe No. 30

GREY ON WORSTED YARN

Erweco Alizarine Black S B on 100 lbs. worsted yarn. Prepare the dye bath with

½ lb. Erweco Alizarine Black S B.
(C. Bischoff & Co., 451 Washington St., New York, N. Y.)
10 lbs. Glauber's Salt.
3 lbs. Acetic Acid.

Enter at 140° F., raise to a boil, and dye at a boil for three-quarters of an hour and then add

¾ lb. Potassium Bichromate

and boil another half hour.

Erweco Alizarine Black S B possess excellent fastness to washing and fulling and is particularly useful in the dyeing of loose wool, slubbing, and yarn. It may also be used for the printing of slubbing in conjunction with flouride of chrome.

Recipe No. 31

BLUE ON COTTON YARN

Katigen Indigo 3 G T Conc. on 100 lbs. cotton yarn. Prepare the dye bath with

5 lbs. Katigen Indigo 3 G T Conc.
(Bayer Co., 117 Hudson St., New York, N. Y.)
5 lbs. Sodium Sulphide Conc.
8 lbs. Soda Ash.
40 lbs. Common Salt.

The dyestuff should be dissolved at 120° F. and the dyeing done at the same temperature for one hour.

Katigen Indigo 3 G T Conc. possesses very good fastness to light, washing and alkali.

Recipe No. 32

GREY ON WORSTED DRESS GOODS

Grey on 100 lbs. worsted dress goods. Prepare the dye bath with

1 oz., 53 grs. Amazo Blue.
(American Dyewood Company, 80 Maiden Lane, New York, N. Y.)
267 grs. Amazo Brill. Red 2 B.
1 oz., 332 grs. Amazo Fast Yellow L R.
15 lbs. Glauber's Salt.
2 lbs. Sulphuric Acid.

Enter goods at 120° F., and bring to boil in 20 minutes. Boil 3/4 to 1 hour. rinse.

The colors used to produce this shade are recommended for their level dyeing properties and good fastness to light and washing.

Recipe No. 33

BROWN ON WORSTED DRESS GOODS

Brown on 100 lbs. worsted dress goods. Prepare the dye bath with

2 ozs., 244 grs. Amazo Blue.
(American Dyewood Company, 80 Maiden Lane, New York, N. Y.)
5⅜ ozs. Amazo Brill. Red 2 B.
11 ozs. Amazo Fast Yellow L R.
1⅜ ozs. Amazo Violet 4 B O.
15 lbs. Glauber's Salt.
2 lbs. Sulphuric Acid.

Enter goods at 120° F., raise to boil in 20 minutes. Boil 3/4 to 1 hour or to shade.

The colors used in the above are of satisfactory fastness to light and are recommended for all classes of wool dyeing by the acid method.

Recipe No. 34

RED ON COTTON YARN

Solamine Red 8 B L on 100 lbs. cotton yarn. Prepare the dye bath with

4 lbs. Solamine Red 8 B L.
(Berlin Aniline Works, 213 Water St., New York, N. Y.)
40 lbs. Glauber's Salt (Crystals).
2 lbs. Soda Ash.

Dye for one hour at about 200° F., and then rinse.

Solamine Red 8 B L is characterized by the excellent fastness to light, being far superior in this respect to all the ordinary direct cotton reds.

Recipe No. 35

BLUE ON COTTON YARN

Helindone Blue 3 R paste pat. on 100 lbs. cotton yarn. Prepare the stock vat as follows

10 lbs. Helindone Blue 3 R paste pat.
(Farbwerke Hoechst, 122 Hudson St., New York, N. Y.)
20 gals Hot Water.
2 qts. Caustic Lye, 77 Tw.
2½ qts. Turcone Oil.
3 lbs. Hydrosulphite conc. powder.

The vat is heated to 115° to 140° F. Reduction takes place in about ten minutes, and the bath has a yellow color.

The dye bath is then made up with water (free from lime) to which 1/2 lb. of Hydrosulphite conc. and 1/2 pt. of caustic soda lye, 77° Tw., have been added for every 200 gallons of water.

The stock bath is then added and the material dyed at 115° to 140° F. for 1/2 hour, wrung out, hung, washed and finally soaped at the boil with two parts of soap to 1,000 of water.

Helindone Blue 3 R paste pat. possesses very good fastness to washing, alkali, and chlorine.

Recipe No. 36

SCARLET ON COTTON YARN

Diamine Fast Scarlet L 4 G on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Diamine Fast Scarlet L 4 G.
(Cassella Color Co., 182 Front St., New York, N. Y.)
25 lbs. Common Salt.
1 lb. Soda Ash.

Enter at 180° F. and dye at a boil for one hour.

Diamine Fast Scarlet L 4 G possesses excellent fastness for a direct cotton color.

Recipe No. 37

VIOLET ON WORSTED YARN

Victoria Violet S 4 B on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Victoria Violet S 4 B.
(Geisenheimer & Co., 189 Front St., New York, N. Y.)
4 lbs. Sulphuric Acid.
15 lbs. Glauber's Salt.

Enter yarn at 140° F. and dye at a boil for one hour.

Victoria Violet S 4 B possesses sufficient fastness for the dyeing of ladies' dress materials and may be used with other colors for the production of navy blue shades in wool printing as well as dyeing.

The imports of cotton goods into the Philippine Islands from Great Britain decreased from $3,499,350 in 1912 to $2,325,460 in 1913.

New Machinery and Processes

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to the textile manufacturers. It is not a list of patents but of improvements on the market, the idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.

Whenever possible we endeavor to make a personal investigation of the new machinery and processes described in this department. In the absence of such personal investigation we must necessarily rely upon information obtained from those who control the machines and processes.

We invite machine builders and others to send us such information for this department.

Cloth Cleaning Machine. L. H. A. Schwartz & Co., 40 Central St., Boston, Mass., are introducing into this country the improved Monforts cloth cleaning and raising machine which is described in another part of this issue.

A Bleaching Solvent. The Jaffrey Mfg. Co., 18 Dunham Pl., Brooklyn, N. Y., are placing on the market "Solvene," a one-boil bleaching solvent. This produces a pure white, thoroughly bottomed and free from any kind of impurities with a single kier boil, on all kinds of cotton piece goods.

Dyeing Machine. Scharmann & Co., Bocholt, Germany. A machine for dyeing yarn on spools. It operates by the circulating system. Among the claims are uniform shade, economy of labor, large production, reduction in waste, and excellent condition of the yarn, which is not disturbed on the spools.

Psychrometer. Dr. Katz, Weipert, Germany. An improved psychrometer by which the relative humidity is automatically indicated by a pointer that moves over a graduated scale.

Automatic Loom. The Saechsischen Maschinenfabrik Rich. Hartmann, Chemnitz, Germany. An improved automatic cop changing loom which is said to embody a number of new features.

Drying Cylinder. Robert Pritchard & Sons, Bury, Eng. An improved steam heated drying cylinder for bleaching and other processes. The improvement consists in an arrangement for removing the water from the cylinder.

Spinning Mule. Brabant & Vandier, Paris, France. An attachment for spinning mules which is designed to keep the tension on the yarn uniform.

Haircloth Loom: L. Turner, Drighlington, Eng. An improved loom for weaving cloth with a horse hair filling.

Friction for Loom Beams. Hartley & Riley, Bury, Eng. An improved device for regulating the friction on loom beams. It is adjusted by means of a screw and spring. The regulation is partly automatic.

Picker Checking Motion. Edward Smith & Son, 178 Garnett St., Bradford, Eng. An improved picker checking motion for which various advantages are claimed, among them being the following: Pickers and straps last longer; check straps and buffer straps are dispensed with; weave can see the shuttle better; the spindle holes wear more evenly.

Steaming Cylinder. J. B. Whiteley, Lockwood near Huddersfield, Eng. An improved cylinder for steaming cloth, which is designed to prevent water from accuculating inside the cylinder and getting on the goods. A corrugated steam pipe is run through the center of the perforated cylinder. By this means the cloth and the space inside the copper cylinder is heated, thus preventing condensation of the steam.

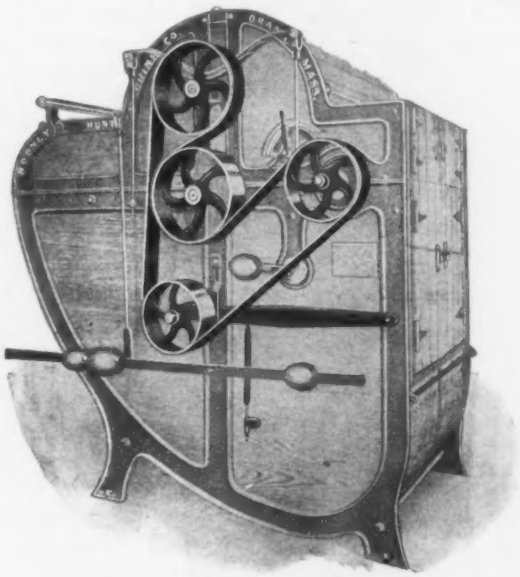
Winding Yarn for Warps. F. Ashworth Holt, Rochdale, Eng. A method of cross-winding yarn on section beams for warping. It is said to be an improvement over the parallel form of winding.

Sample Card. Oscar Schimmel & Co. Akt.-Ges., Chemnitz, Germany, have recently placed on the market an improved card for making small lots of roving for sample yarn.

THE RODNEY HUNT SILENT BELT DRIVE

The belt drive designed and manufactured by the Rodney Hunt Machine Co., Orange, Mass., marks an important improvement in the method of operating fulling mills and washers. One of these drives is shown in the illustration. Every woolen finisher will recognize the advantage of silent drives in the finishing rooms, contributing as they do to the efficiency of the machines and the comfort of the operatives.

The wrap of the belt in this application is of maximum importance. The top pulley is



THE RODNEY HUNT SILENT BELT DRIVE APPLIED TO A FULLING MILL

almost surrounded by the belt. The middle or driving pulley is also well covered, the two remaining pulleys have ample contact for their uses as tighteners. The tension is maintained by gravity, reinforced by the use of a spring. It is thus kept more constant than if springs alone were used. This belt drive has been applied to the largest of the Rodney Hunt machines and has operated perfectly carrying five hundred pounds of goods. Its practicability has been demonstrated and its advantages, besides the undoubted, though theoretical advantage of the elimination of the noise caused by long tooth gears, include the saving of gears and the prolongation of the life of the machine. The new drive obviates the continual vibration that must inevitably result in the loosening as well as possible breaking of bearings, springs, levers, bolts, etc. An unforeseen advantage of the silent belt drive has been the saving of the rolls. They have a longer life without relagging because their rotation is more even than when gears are used. A large saving in power is also the result of the new drive.

THE PERMUTIT PROCESS FOR SOFTENING WATER

The impurities ordinarily found in the water supply of mills along with the great importance of pure water in the dyeing and finishing, make the process of purifying and softening water of great importance to textile manufacturers. Among the methods that have been very successful, first in Europe and later on when introduced into this country, is what is known as the Permutit process, controlled by the Permutit Co., 30 East 42nd St., New York City.

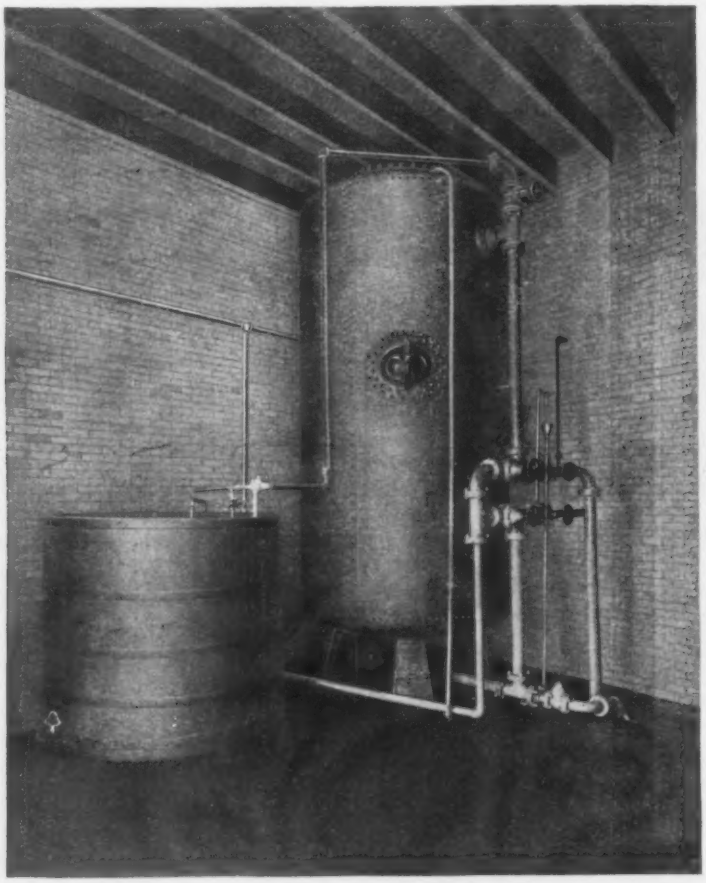
The Permutit process removes all the hardness produced by calcium and magnesium salts and can by a modification be used to remove all iron and manganese which the water may contain. This process was worked out and patented by Prof. Robert Gans, of Berlin, who in experimenting with natural zeolites, concluded that artificial zeolites should produce better results than the natural. He investigated the matter with this point of view, assuming that a definite composition would produce certain results. After much investigation, he succeeded in producing a crystalline zeolite, which he called "permutit", derived from the Latin "permutara", meaning "to exchange", referring to its power to exchange its base for another. A sodium zeolite was produced, its base being sodium, this being the medium of exchange.

This power of exchange is very remarkable, as by exchanging the sodium base it is possible to make a "permutit" of almost any metallic combinations, as for instance calcium and magnesium permutits, also man-

ganese, potassium, ammonium, tin and other metallic permutits. The one which interests us most in the textile industry is the exchange of sodium for calcium and magnesium, by which water is produced of absolute zero, hardness containing neither lime nor magnesium.

The permutit filter used for this process consists of a shell of steel, made in various sizes for the treatment of various quantities of water, of varying hardness. This shell is fitted with pipes and valves in order to give the necessary mechanical treatment to the water, and also to enable washing and regeneration with a salt solution. Inside this shell are placed various layers of gravel and sodium permutit, through which the water to be purified is passed at a comparatively rapid rate. In its passage the whole of the calcium and magnesium salts are absorbed by the permutit, turning the sodium permutit into calcium and magnesium permutit.

It will be obvious that when sodium permutit has absorbed all the calcium and magnesium it is capable of acquiring, something must be done to enable the permutit to continue its work of purification. This is accomplished by the simple addition of solution of common salt to the permutit, which by mass action again drives out the calcium and magnesium, leaving sodium in place as the original sodium permutit; the calcium and magnesium salts passing down the drain as chlorides in place of the sodium chloride.



PERMUTIT FILTER FOR INDUSTRIAL USE

This process may be carried on indefinitely without any loss of the original permutit, the only expense being the necessary salt, which is a very low priced commodity. Permutit filters are usually made to work twelve hours, and regenerate at night.

A water which may change its hardness frequently as some do, is taken care of automatically, without any chemical control whatever. The chemical and dyeing staff of a factory are thus freed from the usual water troubles incidental to all factories. The usual daily analyses are entirely unnecessary.

Wool washed with zero water is free from lime, while if washed with water of only 3° hardness, it contains an appreciable amount. The impairment of wool by its lime content and the difficulty it causes the dyer, are only too well known. Experience shows that for each degree of hardness, 1 1/4 pounds of soap are destroyed per 1,000 gallons of water used, so that a water of 4° hardness, and a consumption of 100,000 gallons per day, will show a direct loss of $30 per day, estimating the soap to cost 6 cents per pound.

The soap loss is of the utmost importance to manufacturers, and, moreover, is unavoidable, as the softening process completes itself with any soap that may be used before any benefit, such as is expected in the process of manufacture, can accrue.

When soap plays the part of a water softener, insoluble calcium and magnesium soaps are formed, which are more or less irregularly deposited upon the material in process, whether silk, wool, or cotton. This is a constant source of trouble, causing irregular and uneven shades and difficulties in matching shades.

When silk is treated with soap in the process of manufacture, it is impossible to wash the soap completely from the skein, on account of the formation of insoluble calcium and magnesium compounds. Moreover in the subsequent weighting the tin does not adhere uniformly to the silk, owing to the lime and magnesium soap precipitates that have been formed. The weighting is thus rendered very irregular. The disadvantages which result from the formation of these precipitates in the baths are well known to manufacturers and dyers. The important part which completely softened water plays in this branch of industry is therefore clearly seen.

The great success of the French silk industry is chiefly due to the purity of the natural water used, a fact acknowledged by the manufacturers themselves. Nevertheless, some of the largest of the French silk houses have installed the permutit process to remove even the smallest degree of hardness from the water.

In many processes it is desirable that water should be absolutely free from both iron and manganese, and when these are present only in very minute quantities, it is almost impossible to remove them entirely by any of the older processes. By treating sodium permutit with a manganese salt, a manganese permutit is produced, and upon passing water through a layer of this, arranged in an apparatus similar to that used to remove hardness, all the iron and manganese salts are eliminated. At the same time, all organic matter, and any bacteria which may be present are entirely oxidized, this manganese permutit being regenerated by the addition of a solution of permanganate of potash. The process is very simple, and thoroughly effective, costing very little per 1,000 gallons.

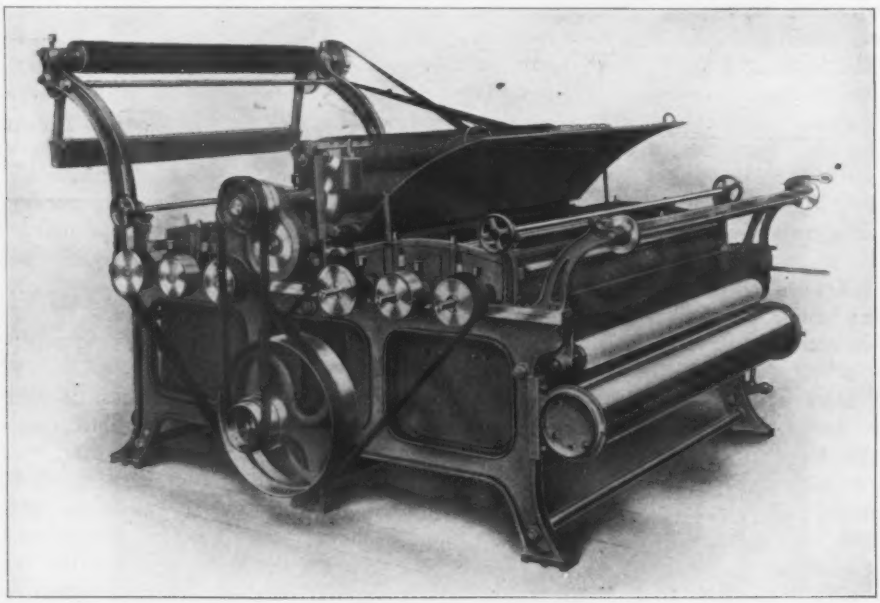
The permutit process is equally well adapted to water for domestic use. Water purified by the permutit process is ideal for boiler plants. The whole of the scaling matter being removed from the water, there is no incrusting matter in the boiler, and as a consequence, it is unnecessary to open the boiler except for the annual inspection. All that is necessary is to see that the boilers are regularly blown off and occasionally emptied. Boilers treated with pure water show a marked increase in steaming capacity, reduced consumption of fuel and no cleaning costs. This "permutit" or artificial zeolite is one of the most interesting and useful of the products which have been developed during the past decade.

Flax, hemp, wool and silk are ancient fibers, while cotton and jute are of very modern use in the world's market.

MONFORT'S IMPROVED CLOTH RAISING MACHINE

The illustration shows the improved Montfort's breaker raising machine with six emery rollers, for treating cloth simultaneously on both sides. The machine, for which L. H. A. Schwartz & Co., 40 Central St. Boston, Mass., are the sole American agents, consists of two cast iron side frames carefully planed and joined by wrought iron traverses, a cloth tension device at the entrance, a brake roller, and a cast iron steam heated drum with polished surface for drying the cloths before reaching the emery rollers, thus aiding these rollers to remove shives, seeds and other impurities. The emery rollers are arranged in such a manner that three rollers are operating on each side of the cloth. The rollers are covered with wooden casing, covered with emery, in which right and left spiral grooves are cut to allow dust, waste and other matters to escape. They run in self oiling ring bearings and are driven on both sides. Six adjustable guide rollers regulate the intensity of contact with the emery rollers. The speed of the cloth is changed by step pulleys. The goods are carried along by plush covered drag-rollers, placed in the middle of the machine, from where they pass to the plaiting folder. The production of the machine is from 30 to 60 yards per minute.

This machine is used not only as a cloth cleaning machine, but also as a breaker raising machine, especially for hard woven goods, which are run on the emery machine to make the cloth softer before the napping. The napper can then attack the cloth easily. In this way one or two runs over the nappers are saved. This method also saves a lot of napper wire. Further information may be obtained from the American agents.



MONFORT'S CLOTH RAISING MACHINE

SCOURING WOOL BY THE NAPHTHA PROCESS

There is at present a decided lack of information among wool manufacturers on the subject of degreasing wool and recovering the by-products of wool scouring. This has been due to two reasons: First, although the value and advantages of degreasing wool have been known to inventors and promotors for many years, the field has been used by many such persons for promotion schemes, which have invariably proved failures, most of them resulting in failure. The

second reason is that the only really practicable process known was invented by the late Emile Maertens of Providence, R. I., and patented in 1895. A plant was erected for a large Massachusetts mill, and run for several years, after which the same company bought the American patent rights, and erected a new plant of greatly increased capacity which is in use today. Owen Stabler of Providence, R. I., was associated with Mr. Maertens for about twenty years, and has had charge of the technical end of the degreasing business almost from its inception. All of the plants now in operation, under these patents, both in this country and abroad, were designed and built under his direction or supervision.

Mr. Stabler has recently entered the field with a process, based upon the expired Maertens patents, but he has embodied many improvements in his new designs which will lessen the initial outlay, and lower the working costs, as well as improve the quality of the by-products. Mr. Stabler states that among the many solvents which have been proposed for degreasing wool are coal tar benzol, bisulphide of carbon, tetra cloride of carbon, ether, chloroform and alcohol. Aside from their high cost, all of these solvents have objectionable features which prevent their being utilized for the purpose. All of them dissolve a certain proportion of coloring matter from sheep dung, as well as other pigments adhering to the fleece, and are more or less poisonous to breathe or handle. Others dissolve the natural potash soap, which has such valuable detergent qualities in cleansing the wool after the grease has been removed.

Naphtha has none of these drawbacks. When properly handled it is absolutely safe from explosion. Plants which have been in constant use for fifteen years clearly demonstrate this. It has no corrosive action upon metals; it is non-poisonous; it extracts the grease from the wool, but leaves the natural potash soap, which is all that is necessary in the subsequent operation of scouring; it does not dissolve coloring matter from sheep dung or other materials. Naphtha is used over and over again in the process and the slight loss, coupled with the abundant supply and low cost, makes it almost negligible as a cost factor in the operation.

The advantages of degreasing, over washing with soap and alkali are many and very obvious, and can easily be demonstrated on either a large or small scale. The wool is left in a lustrous, lofty condition, ideal for manufacturing. The staple is more elastic and, of course, stronger than the soap and alkali washed article. It will take dyestuff more effectively. Being free from any felted parts, it cards and combs freely without undue breakage of fibers or the making of nibs. This results in a larger production on cards, combs, drawing and spinning machinery. The saving which may be effected by the process to establishments that work their own wool is, in round numbers, from 1 1/2 to 3 cents per pound, and in certain cases, it may be higher. The wool fat recovered is a regular article of commerce and prices are given weekly in papers relating to the trade.

The cost of the degreasing operation, including labor, solvent and interest depreciation is easily covered by the grease recovered, and should leave a margin besides. A great saving is made in soap which is entirely dispensed with. There is a greater yield of wool fibers, none being dissolved by soap and alkali, and there is a larger proportion of tops to noils, and the wool works better in every part of the mill.

THE TOLEDO AUTOMATIC SCALE FOR TEXTILE MILLS

The illustration shows a scale, built by the Toledo Scale Co., Toledo, O., which will commend itself to textile manufacturers as soon as the construction and operation are understood. The article to be weighed is placed on the platform of the scale, and instantly and automatically the exact weight is indicated on a large dial readable at a distance of twenty feet. The scale is automatic, there being no loose weights to handle or springs to vary with the changes of temperature. The weighing mechanism, which is simple in construction, is exposed to view and encased in a dust-proof housing, thus protecting the scale from dust and dirt.

Toledo scales are made in both portable

and dormant styles with capacities varying from 200 to 1,500 pounds. This scale is especially well adapted for textile uses, such

THE TOLEDO AUTOMATIC SCALE FOR TEXTILE MILLS

for example as the weighing of bales of cotton, wool and other material to check the invoice weights. The Toledo Scale Co. have been manufacturing scales for over twelve years; more than 125,000 Toledo automatic scales being used by merchants and manufacturers in the United States and foreign countries.

A WOVEN FABRIC

The illustrations show the construction of various forms of a woven fabric for which an American patent has recently been issued. The warp threads are crossed in such a way as to make the fabric firmer than with the ordinary method of weaving. Another feature is the use of filling interwoven with the warp and interspersed between the filling. These filling threads are formed from a continuous strand extending back and forth across the series of warp members and interwoven in such a manner as to form selvages and bind the warp members together. These filling threads are separate and may be made of various materials without being spun or twisted. Fig. 1 shows the two side marginal portions of a woven fabric, the intermediate portion being broken out; Fig. 2 is a similar view of a piece of a fabric of which some of the warp threads are offset to produce a zigzag pattern; Fig. 3 is a similar view of a fabric of which the warp threads are offset to form a diamond-shaped pattern. Fig. 4 shows the arrangement of the filling in a pattern; Fig. 5 represents a section on line 5—5 of Fig. 1.

Figs. 1 and 5 shows the warp at 10, and the filling at 11. The filling is formed by a continuous strand which extends back and forth across the warp and which is interwoven therewith and looped, as indidated at 12, to bind in the outer warp members to form selvages. The warp in this form is arranged in pairs, and the two threads of each pair is offset so as to be interlocked with each other in addition to passing under and over the transverse threads with which they are interwoven. Each warp thread is given

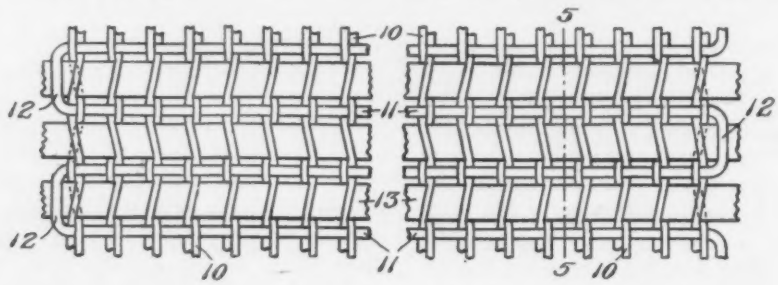


FIG. 1.

a slight lateral zigzag form, which is not particularly noticeable. Filling threads, 13, are interspersed between the filling, 11, and are interwoven with the warp.

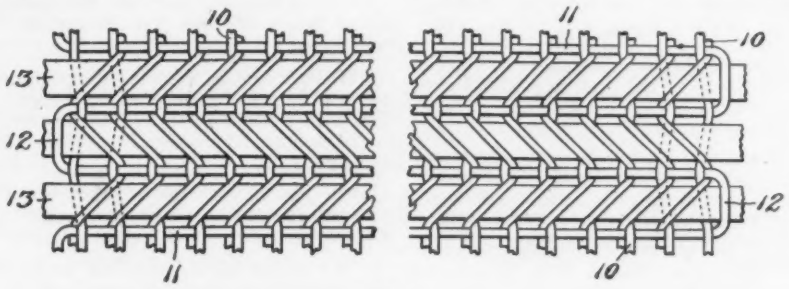


FIG. 2

The purpose of the extra filling is to give bulk to the fabric, and may be made of a variety of materials, such as grass, straw, rush, excelsior, or jute. The fabric is especially adapted to the use of long grass, which may be procured in lengths of fifteen to twenty-five inches. As shown by Fig. 5, each filling is composed of a bundle of units

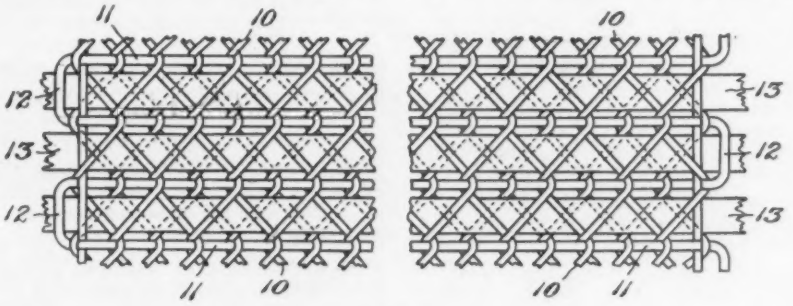


FIG. 3

FIG. 4

F.G. 5

14, each unit in this instance representing a blade of grass. The cross section of the filling member includes any desired number of units, five or six being a convenient number. When the length of the units is less than the desired width of the fabric their ends may be lapped, as shown at Fig. 4. In this figure each unit represents a blade of grass which is relatively broad at its base and which tapers naturally to a fine point at the opposite end. The small end of one unit is lapped with the large end of another unit, with the idea of forming a composite filling whose cross section will be nearly uniform at all points. When the units are arranged in this manner they are sufficiently bound together by the warp when interwoven in the fabric to dispense with being twisted or spun. Fabric comprising fillings of this character is especially adapted for floor mats and rugs.

The location of the filling, 11, is such that it is not subjected to wear. This is because the extra filling, being of substantially greater diameter, project above and below the fine filling and supports any article which may be standing upon the fabric. In the form shown at Fig. 2, the parts are like those described. The only difference as shown by Fig. 2 is that one of the warp threads of each pair is offset so as to be looped over a warp thread of an adjacent pair. This arrangement of the warp produces a decided zigzag or herring-bone pattern.

Personals

L. W. Cuddy, formerly connected with the Kilburn Mill, New Bedford, Mass., and for the past three years superintendent of the Bibb Manufacturing Co., Columbus, Ga., has resigned to become general superintendent of the Quitman Manufacturing Co., Quitman, Ga. He is succeeded at the Bibb Manufacturing Co. by W. H. Mooney.

James Harrison, for a number of years overseer of ring spinning at the No. 2 Globe Yarn Mill, Fall River, Mass., has resigned to accept a similar position at the No. 5 Fall River Iron Works Mill. He has been succeeded at the Globe Yarn Mill by Mortimer Sullivan.

James Hainsworth, for a number of years in charge of the folding and finishing departments at the Lowell Bleachery, Lowell, Mass., has been promoted to the position of superintendent.

John T. Dawson, general manager of the American Thread Co., Fall River, Mass., has severed his connection with that company.

Hugh Carragher, designer at the Jenckes Spinning Co., Pawtucket, R. I., has resigned to accept a position as head designer and superintendent at the Danielson Cotton Co., Danielson, Conn.

Frederick Pickles, for twenty-five years overseer of the dyeing department at the Cranston Worsted Mill, Bristol, R. I., has severed his connection with that company.

Charles Robinson, overseer of mule spinning at the Boott Mill, Lowell, Mass., has severed his connection with that company.

George Schutt has been appointed superintendent of the velvet department at the Merrimack Manufacturing Co., Lowell, Mass. He was formerly employed at Woonsocket, R. I.

George W. Taylor, superintendent of the Darling Woolen Mill Co., Holliston, Mass., has resigned his position with that company.

J. H. Redmond has accepted the position of designer at the Broad Brook Co., Broad Brook, Conn. He was formerly employed at the Ashtabula Worsted Mill, Ashtabula, O.

James Leach, overseer of weaving at the Abedare Weaving Co., Central Falls, R. I., has severed his connection with that company.

W. Oliver, designer at the Broad Brook Co., Broad Brook, Conn., has resigned to accept a more responsible position with the Darling Woolen Mills Co. with mills at Holliston, Worcester and Holden, Mass.

Herbert Hopkinson has accepted the position of overseer of twisting, beaming and warping at the Anco Mills, Wilkinsonville, Mass. He was formerly employed at the Boot Mills, Lowell, Mass.

Israel Robinson, overseer of dressing at the Uxbridge Worsted Co., Uxbridge, Mass., has severed his connection with that company.

Anthony Keenan, overseer of carding at the Bound Brook Woolen Mill, Bound Brook, N. J., has severed his connection with that company.

J. H. Prescott has accepted the position of overseer of knitting at the Long Island Knitting Mills Co., Brooklyn, N. Y. He was formerly employed at the Allentown Eiderdown Co., Allentown, Pa.

James Fairbrother has accepted the position of overseer of carding at the F. C. Smith Mill, at Worcester, Mass. He comes from Pascoag, R. I.

J. R. Christie has accepted the position of overseer of knitting at the Contoocook Mills Corporatin, Hillsboro, N. H.

M. R. Macomson, superintendent of the Saxon Mills, Spartanburg, S. C., will be superintendent of the Enoree Manufacturing Co., Enoree, S. C., as well as the Saxon Mill.

E. A. Holt has accepted the position of overseer of carding at the Springstein Mill, Chester, S. C.

H. W. Smith has accepted the position of overseer of weaving at the Erlanger Mill, Lexington, N. C. He was formerly employed at the Pickett Cotton Mills, High Point, N. C.

J. W. Gilley has accepted the position of overseer of weaving at the Pickett Mill, High Point, N. C. He was formerly employed at the Dan River Mills, Schoolfield, Va.

J. H. Crews has been appointed manager of the Enoree Manufacturing Co., Enoree, S. C. He was formerly employed at the Saxon Mills, Spartanburg, S. C.

Roy Robinson, designer at the Capital City Mill, Columbia, S. C., has resigned to accept a position at Greer, S. C.

W. F. Howard has accepted the position of overseer of weaving at the Augusta Factory, Augusta, Ga.

J. A. Maury has accepted the position of overseer of the cloth room at the Carolina Mills, Greenville, S. C. He was formerly employed at the Norris Mill, Cateechee, S. C.

The annual meeting of the Musgrove Knitting Co., Pittsfield, Mass., was held January 26 when directors were elected as follows: J. H. Musgrove, C. K. Ferry, William A. Burns, Perry E. Miller, J. H. Wood, Charles Musgrove, W. S. Noble. Joseph H. Wood was chosen president; J. H. Musgrove, treasurer; Charles Musgrove, clerk, and Perry E. Miller, superintendent.

James H. Gannon has accepted the position of overseer of finishing at the Cowan Woolen Co., Lewiston, Me. He was formerly employed at the H. T. Murdock & Co.'s Mill at Proctorsville, Vt.

Arthur Smalley, formerly head designer at the Bradford-Durfee Textile School, Fall River, Mass., but later employed as overseer at the Lancaster Mill, Clinton, Mass., has been appointed overseer of weaving at the American Linen Co., Fall River, Mass., to succeed William J. Colbert. Mr. Colbert was appointed superintendent of this company to succeed John A. Collins.

Daniel J. Carey has accepted the position of overseer of dyeing and bleaching at the Revolution Cotton Mills, Greensboro, N. C. He was formerly employed at the Boston Manufacturing Co., Waltham, Mass.

S. G. Hall, overseer of dressing at the Aetna Mills, Watertown, Mass., has resigned.

Robert F. Logan, overseer of weaving at the Manhasset Manufacturing Co., Putnam, Conn., has severed his connection with that company.

William H. Kingsley has accepted the position of overseer of weaving at the Manhasset Manufacturing Co., Putnam, Conn.

P. Riley, overseer of dyeing at the Granite State Mills, Fairbanks & Dorr, Guild, N. H., has severed his connection with that company.

Nelson Fales has accepted the position of overseer of dressing at the Uxbridge Worsted Co., Uxbridge, Mass.

Lawrence H. Love, overseer of weaving at the Yale Woolen Mills, Yale, Mich., has severed his connection with that company.

W. E. Bell has been appointed president of the Amrein Dyeing Co., Philadelphia, Pa., to succeed August Amrein.

Charles Palmer, overseer of weaving at the Bernard Mill, Fall River, Mass., has resigned his position with that company.

James Mulligan has accepted the position of second hand in the weaving department at the Stillwater Worsted Co., Harrisville, R. I., to succeed the late George Verity.

Joseph Mailloux, overseer of weaving at the Jenckes Spinning Co., Pawtucket, R. I., has severed his connection with that company. He is succeeded by A. G. Stevens of Easthampton, Mass.

William N. Harris, for a number of years agent of the Slater Manufacturing Co., Pawtucket, R. I., has severed his connection with that company. John T. Kirk, superintendent of the same company, has also resigned.

Joseph Mercer, formerly connected with the Willimantic Cotton Mills Corporation, Willimantic, Conn., has been appointed agent of the Slater Manufacturing Co., Pawtucket, R. I.

Anthony Moore has been appointed superintendent of the Slater Manufacturing Co., Pawtucket, R. I. He was formerly employed at the Merrick Hadley Mill, Holyoke, Mass.

Everaid Alex, second hand in the cloth department at the Butler Mill, New Bedford, Mass., has resigned to accept the position of overseer of the cloth department at the Lincoln Mill, Fall River, Mass.

Joseph Watters, who recently retired as superintendent of the Osborne Mill, Fall River, Mass., after fifty years of continuous service, sailed from New York for a two months' cruise in the Mediterranean.

James Lowe, overseer of carding at the Berkshire Cotton Manufacturing Co., Adams, Mass., has resigned his position with that company after three years of service.

Louis Lafrance, overseer of spinning for over five years at the Fall River Iron Works Co., Fall River, Mass., has resigned his position with that company.

Stephen McKenna, designer at the Lawrence Keegan Mill, Wilsonville, Conn., has severed his connection with that company.

Alfred E. Lord, overseer of weaving for the past twenty-five years at the Carter & Rogers Mill, Lebanon, N. H., has resigned his position with that company.

George Gessner has been appointed overseer of carding on the night shift at the Amos Abbott Co., Dexter, Me.

James E. Reynolds, superintendent and designer at the Baltic Mills, American Woolen Co., Enfield, N. H., has severed his connection with that company.

James McKeon has accepted the position of overseer of carding at the Locustville Woolen Co., Hope Valley, R. I.

John E. Rousemaniere has been elected treasurer of the Tallassee Falls Manufacturing Co., Tallassee, Ala.

J. E. Gilmer has accepted the position of master mechanic at the Knoxville Spinning Co., Knoxville, Tenn. He was formerly employed at the Vardry Cotton Mills, Greenville, S. C.

William E. Elsberry has been appointed secretary and assistant treasurer of the Tallassee Falls Manufacturing Co., Tallassee, Ala.

Edward Ware has accepted the position of overseer of spinning at the Inverness Mills, Winston-Salem, N. C. He was formerly employed at the Wennonah Mill, Lexington, N. C.

M. P. Stacks has accepted the position of overseer of carding and spinning at the Anchor Mills, Huntersville, N. C. He was formerly employed at the Lynchburg Cotton Mills, Lynchburg, Va.

T. Burt Stevenson has accepted the position of superintendent of the Langley Manufacturing Co., Langley, S. C. He was formerly agent of the Edwards Manufacturing Co., Augusta, Me.

Franklin D. Williams, who was for a number of years treasurer of the Hamilton Manufacturing Co. at Lowell, Mass., and the Fiskdale Mill, Fiskdale, Mass., also connected with Wellington, Sears & Co., died in New York City. Mr. Williams was

well known in social life and was a member of several clubs. He leaves a large number of friends in Boston as well as New York City.

Alexander Morrison has accepted the position of overseer of weaving at the Yale Woolen Mills, Yale, Mich. He comes from Somersworth, N. H.

John Cantlin, overseer of carding at the Manton Mill, American Woolen Co., Manton, R. I., has severed his connection with that company to accept a similar position with the Esmond Mill, Esmond, R. I.

James H. Pickford has accepted the position of superintendent and designer at the Baltic Mill, American Woolen Co., Enfield, N. H., succeeding James Reynolds.

John C. Watson has been appointed superintendent of the Farwell Bleachery, Lawrence, Mass.

Howard S. Ford has accepted the position of overseer of carding at the Darling Woolen Mill Co., Holliston, Mass., succeeding Frank J. Denico.

Abraham Hanson has accepted a position with Whittall & Thomas, Worcester, Mass., in their worsted spinning and twisting departments. He was formerly employed at the Queensbury Mills at Worcester and Clinton, Mass.

Ernest Haynes has been appointed superintendent of the Richardson, Foster Co., Central Falls, R. I., to succeed John Gormley, Jr.

Edwin Lawton has accepted the position of overseer of dyeing at the Fairbanks & Dorr Mill, Guild, N. H. He comes from Winooski, Vt.

Arthur S. McDarby, overseer of carding at the Utica Steam Cotton Co., Utica, N. Y., has severed his connection with that company.

W. Easton, designer at the Puritan Mill, American Woolen Co., Plymouth, Mass., has resigned to accept a similar position with the Uswoco Mill, Lawrence, Mass.

George G. Phillips has accepted the position of overseer of carding at the William E. Hooper & Sons' Mill, Baltimore, Md.

F. Weeks has accepted the position in charge of the dressing nights at the Stillwater Worsted Co., Harrisville, R. I. He was formerly employed at the Strathmore Worsted Co., Concord Junction, Mass.

Sylvester McGinn and James Sullivan have been promoted from second hands in the carding department at the No. 1 and 2 Wampanoag Mills, Fall River, Mass., to the positions of overseer.

Thomas Parkin, overseer of dressing at the Continental Mill, Providence, R. I., has resigned his position with that company.

William Batten has accepted the position of overseer of carding at the Killingly Manufacturing Co., Killingly, Conn., to succeed Winfred Barber.

Rufus A. Soule, Jr., has been elected treasurer and clerk of the Soule Mill, New Bedford, Mass., succeeding Frederick B. Massey.

Sidney L. Dean, overseer of weaving at the Esmond Mill, Esmond, R. I., has resigned to become superintendent of the Danielson Cotton Co., Danielson, Conn.

Charles H. Brownell, for a number of years overseer of carding at the Wampanoag Mill, Fall River, Mass., has secured a position as assistant superintendent at the Burgess Mill, Pawtucket, R. I.

R. G. Mims has been appointed general overseer of all the weaving in the Aragon Mills, Aragon, Ga.

W. A. Jennings has accepted the position of overseer of carding and spinning at the Riverside Mills, Worthville, N. C.

J. L. McCarver has accepted the position of second hand in the spooling and warping departments of the Merrimack Mills, Huntsville, Ala.

J. W. Barefoot has accepted the position of overseer of weaving at the Abingdon Mills, Huntsville, Ala. He comes from Baltimore, Md.

A. W. Roper has accepted the position of overseer of carding and spinning at the Broad River Mills, Blacksburg, S. C.

Benjamin Bethel has accepted the position of overseer of the cloth room at the Fulton Bag & Cotton Mills, Atlanta, Ga., to succeed H. M. Erwin.

R. H. Williams has accepted the position of overseer of spinning at the Union Buffalo Mills, Union, S. C. He was formerly employed at the Thrift Manufacturing Co., Paw Creek, S. C.

John Curwen has accepted the position of overseer of carding at the Demopolis Cotton Mill, Demopolis, Ala.

W. S. Trickett, superintendent of the German American Mills, Spray, N. C., has severed his connection with that company. He is succeeded by Luther Knowles who comes from the Rhode Island Mills at Spray.

The death is reported of Charles F. Berg, for several years employed by Scott & Williams and the George D. Mayo Machine Co., as a mechanic for the purpose of setting up new machines delivered by them in various parts of the country. Mr. Berg will be missed not only by the knitting trade, by whom he was universally liked, but his employers as well.

Arthur R. Sharp, treasurer of the Sharp Manufacturing Co. of New Bedford, Mass., and also treasurer of the Hamilton Manufacturing Co. of Lowell, Mass., entertained the agents, superintendents and overseers at a dinner at the Quincy House, Boston, Mass. Mr. Sharp had offered a prize of $50 in gold to the overseer making the best showing for the past six months. Arthur Goulet, overseer of the winding deparment at the Hamilton Manufacturing Co. of Lowell, was given the prize, he having increased the production 25 per cent. and decreased the cost 15 per cent.

George I. Macey, superintendent of the Soule Mill, New Bedford, Mass., has resigned. He is succeeded by Frank Neild, who has been superintendent of the Neild Manufacturing Co. of the same city.

At a meeting recently held by the stockholders of the New Bedford Cotton Mills Corporation, New Bedford, Mass., Walter H. Underdown was elected clerk and treasurer.

Joseph McGowan has accepted the position of night overseer of carding at the Intervale Mills, Webster, Mass.

Harry Carruthers, overseer of dyeing at the Apponaug Print Works, Apponaug, R. I., has severed his connection with that company to accept a similar position at the Garner Print Works & Bleachery, Garnerville, N. Y.

Ernest Nelson has accepted the position of designer at the Newmarket Manufacturing Co., Newmarket, N. H. He was formerly employed at the Merrimack Manufacturing Co., Lowell, Mass.

Edward D. Starr, overseer of mule spinning and James McGlade, overseer of the silk department at the Newmarket Manufacturing Co., Newmarket, N. H., have resigned their positions with that company.

George Kerr, master mechanic at the Renfrew Manufacturing Co., Adams, Mass., and one of the oldest employes of that company, has resigned his position with that company.

A. C. Phelps, manager of the German-American Co. with mills at Draper and Spray, N. C., has resigned. He is succeeded by George Fraker.

M. W. Moore has accepted the position of overseer of weaving at the Alexander City Cotton Mill, Alexander City, Ala. He comes from Jefferson, Ga.

W. L. Stephens has accepted the position of overseer of weaving at the Valley Creek Mills, Selma, Ala.

Jacob Kiser has accepted the position of overseer of spinning at the Cherryville Cotton Mills, Cherryville, N. C.

W. P. Lee has accepted the position of overseer of spinning at the Chadwick-Hoskins Mill No. 3, Charlotte, N. C.

W. T. Byrd has accepted the position of overseer of carding at the Oxford Cotton Mill, Oxford, N. C. He was formerly employed at the German-American Mills, Draper, N. C.

W. M. Miller has accepted the position of overseer of carding at the Hartsville Cotton Mills, Hartsville, S. C.

C. L. Coggins has accepted the position of overseer of spinning at the Wenonah Mill, Lexington, N. C., succeeding E. C. Weare.

J. A. Parker has accepted the position of overseer of carding at the Judson Mills, Greenville, S. C.

A. O. Anderson has accepted the position of overseer of carding and spinning at the Mill No. 2 of the Fort Mill Manufacturing Co., Fort Mill, S. C.

Samuel Perkins has accepted the position of overseer of finishing at the Griffin Manufacturing Co., Griffin, Ga.

W. R. McElween has been promoted from overseer of weaving to superintendent of the John P. King Mill, Augusta, Ga.

Michael Rafter has accepted the position of overseer of carding and spinning at the Pee Dee Mill No. 2, Rockingham, N. C.

W. N. Wilson has accepted the position of overseer of spinning and spooling at the Buck Creek Cotton Mills, Siluria, Ala. He was formerly employed at the Delta Cotton Mill, McComb, Miss.

T. W. Hill has accepted the position of overseer of carding at the Riverside Mill No. 2, Danville, Va., succeeding Eulis Price.

Bradley Smith has been promoted from second hand to overseer of weaving at Mill No. 1 of the John P. King Manufacturing Co., Augusta, Ga.

Daniel McElhaney has been promoted from second hand to overseer of weaving at Mill No. 3 of the John P. King Manufacturing Co., Augusta, Ga.

W. J. Hallett has accepted a position as superintendent of the Hartley Silk Company's branch mill at West Pittston, Pa.

Ernest W. Annable, for seventeen years employed at the Elmira Knitting Mills, Elmira, N. Y., has accepted the position of superintendent of the Standard Knitting Mills Co. of Lebanon, Pa.

J. S. Clancy, overseer of finishing at the Mianus Manufacturing Co., Coscob, Conn., has severed his connection with that company.

Thomas F. McDonald, designer at the Bay State Mill, American Woolen Co., Lowell, Mass., has resigned.

John Barnes, master mechanic at the Contoocook Mills Corporation, Hillsboro, N. H., has resigned. He had been with this company for about twenty-five years.

Leonard Tucker, overseer of the underwear department at the Contoocook Mills Corporation, Hillsboro, N. H., has resigned.

Herman Stelzner, overseer of dyeing at the Elmville Worsted Co., Elmville, Conn., has resigned his position with that company.

Robert Alexander, superintendent of the Assabet Mill, American Woolen Co., Maynard, Mass., has severed his connection with that company. He is succeeded by A. B. Day, who comes from the Burlington Mill, Winooski, Vt.

R. A. Waddell, overseer of weaving at the Tilton Mill, Tilton, N. H., has resigned. He is succeeded by L. B. Peabody.

William J. Rollinson, overseer of finishing at the Waucantuck Mill, Uxbridge, Mass., has severed his connection with that company.

George J. Roberts has accepted the position of overseer of finishing at the Eddystone Manufacturing Co., Eddystone, Pa.

John Kirk has been appointed superintendent of the Nashawena Manufacturing Co., New Bedford, Mass. He was formerly superintendent of the Slater Mill, Pawtucket, R. I.

Arthur R. Jones, agent of the Anderson Mill, American Woolen Co., Skowhegan, Me. has been appointed agent of the new mill which was recently taken over by the American Woolen Co. in addition to his other duties. The mill was formerly known as the Wesserunsett Worsted Co.

Charles L. O'Brien has been appointed overseer of weaving at the new mill of the Lancaster Mills, Clinton, Mass. He comes from New Bedford, Mass.

George S. Thompson, for sixteen years overseer of the weaving department at the Lancaster Mill, Clinton, Mass., has severed his connection with that company. He is succeeded by Daniel H. Grady.

E. D. Starr has been appointed superintendent of the Clinton Mill, B. B. & R. Knight Co., Woonsocket, R. I., succeeding Charles Morton. He was formerly employed at Newmarket, N. H.

George Fish, superintendent of the Boott Mill, Lowell, Mass., has resigned to accept a similar position at Pawtucket, R. I.

J. D. Patton has accepted the position of overseer of spinning at the Monroe Cotton Mill, Monroe, Ga.

W. H. Still, overseer of carding at the Hannah-Pickett Mills, Rockingham, N. C., has resigned to accept a similar position at Lynchburg, Va.

H. V. Deaver has accepted the position of overseer of carding at the Steele's Mill, Cordova, N. C. He was formerly employed at the Great Falls Manufacturing Co., Rockingham, N. C.

M. W. Moore has accepted the position of overseer of weaving, slashing and drawing-in at the Alexander City Cotton Mills, Alexander City, Ala.

C. H. West has accepted the position of overseer of carding at the Sycamore Mills, Sycamore, Ala. He was formerly employed at the Highland Mills, Talladega, Ala.

W. C. White has accepted the position of overseer of spinning at the Barker Cotton Mill, Mobile, Ala. He was formerly employed at the Holt-Williamson Mill at Fayetteville, N. C.

J. P. McCraw has accepted the position of overseer of weaving at the South Texas Cotton Mills, Brenham, Texas. He was formerly employed at the Highland Park Mill No. 1 of Charlotte, N. C.

George Irons, overseer of weaving at the Elmville Worsted Co., Danielson, Conn., has resigned.

C. M. Klebart has accepted the position of overseer of weaving at the Oakland Manufacturing Co., Reisterstown, Md. He was formerly employed at the Stanley Woolen Co., Uxbridge, Mass.

John A. Sullivan, for a number of years overseer of the spinning department at the Fall River Iron Works, Fall River, Mass., died at his home in that city. He was a member of the F. R. Council Knights of Columbus and Court Order of Foresters. He is survived by his widow, one son and a daughter.

Claude Clark, superintendent of Mill No. 2 of the New York Mills, New York Mills, N. Y., has resigned his position to accept a similar one with the Bennettsville Mill, Bennettsville, S. C.

Harry Toulson has been apointed superintendent of the yarn department for the Salt's Textile Manufacturing Co., Bridgeport, Conn. Mr. Toulson was formerly in charge of the curling department for this company. Previous to this time he was with the Cranston Worsted Mills, Bristol, R. I. Mr. Toulson is considered one of the best novelty yarn men in the business and is well fitted for the position which he now holds.

Franz Franken has accepted the position of overseer of dyeing at the Reliable Dye & Bleach Works, Cleveland, Ohio. He was formerly employed at the Mankato Spinning & Knitting Mills Co., Mankato, Minn.

B. O. Ashdown, overseer of weaving at the Oakland Manufacturing Co., Reisterstown, Md., has severed his connection with that company.

H. B. McKee, overseer of finishing at the Oakland Manufacturing Co., Reisterstown, Md., has severed his connection with that company.

John H. Arran has accepted the position of overseer of finishing at the Darling Woolen Mill Co., Holden, Mass. He was formerly employed at the Peace Dale Manufacturing Co., Peace Dale, R. I.

Wesley Ayers has been appointed overseer of dyeing at the Stillwater Worsted Co., Harrisville, R. I. He was formerly employed at the Waterhouse & Howard Mill, North Adams, Mass.

John Hartley, overseer of dyeing at the Reliable Dye & Bleach Works, Cleveland, Ohio, has severed his connection with that company.

John Mercer died at his home in Fall River, Mass., at the age of 42 years. Mr. Mercer was overseer of weaving at the Fall River Iron Works Mill No. 1 and resigned his position there in 1911 on account of ill health. He was a prominent member of the Ancient Order of Foresters and of the Manchester Unity, Odd Fellows.

James H. Holden, overseer of dressing and spooling at the Joseph Noone's Sons Co., Peterboro, N. H., died at his home in Peterboro. An aged mother and his wife survive him.

DEATHS

George J. Sager, a member of the firm of Sager Bros., manufacturers of knit goods at Syracuse, N. Y., died at his home in that city on January 28 at the age of 73 years. Mr. Sager was a director in many banking institutions, a trustee of the Syracuse University and a leading member of the Grand Army of the Republic. Death was due to paralysis. He is survived by his widow.

Magnus Baumgaertner, for many years superintendent of the United Ribbon Co.'s plant at Paterson, N. J., died January 28 after an illness which dated from last September. Mr. Baumgaertner was born in Germany sixty years ago and came to this country in 1883. He settled in New York City, taking a position with Richard Walter, with whom he remained for twelve years. In 1892 he came to Paterson, N. J., and became superintendent of the United Ribbon Co. His wife and seven children survive him.

William Rogers, one of the best known and most experienced silk throwsters in Paterson, N. J., died at his home in that city January 28. He had been connected with the silk industry for more than thirty years. He was formerly connected with the Harmony Silk Co. of Paterson as one of its organizers. Later he started in the hard silk business for himself. His widow and two children survive him.

John H. Schatz, a well known silk salesman of Paterson, N. J., died January 28 at his home in that city from an attack of heart trouble. Mr. Schatz was born in Basel, Switzerland. Twenty-five years ago he came to Paterson and was first employed by the Weidmann Silk Dyeing Co. Later he became connected with the Knipscher & Maass Silk Dyeing Co. and since the formation of the National Silk Dyeing Co. he has been outside man for that concern. His wife and two daughters survive him.

E. C. Caswell, senior partner and founder of the firm of E. C. Caswell & Co., woolen manufacturers of Bloomsburg, Pa., died at his home in that city at the age of 70 years from a stroke of apoplexy.

The death is noted of John S. Doak, 31 years old, manager and treasurer of the Haddon Hosiery Co., Walnut Lane, Germantown, Philadelphia, Pa., and son of ex-Councilman John Doak. Mr. Doak had been ill for nearly two years. He was a member of the National Association of Hosiery and Underwear Manufacturers and is survived by his widow.

Charles W. Wood, agent of the Mt. Vernon-Woodberry Cotton Duck Mills, Baltimore, Md., died at his home in that city at the age of 64 years. His wife and four daughters survive him.

Edward G. Shepardson, for the past eight years superintendent of the Kilburn Mill, New Bedford, Mass., died at his home in that city at the age of 46 years. He was born in Moosup, Conn., and is survived by his widow. He had been ll for about two weeks

Henry Brinton, president of the H. Brinton Co., of Philadelphia, died January 30th at his home at Bala, after a brief illness, from heart trouble. Mr. Brinton was one of the men who made history in the knitting machine building industry. He was born in 1848 at Christiana, Pa., of a line of Quaker ancestry. He descended from William Brinton who came to America in 1684 and received a grant of land directly from William Penn, some of which is still in the Brinton family. It was on this land that the Battle of Brandywine was fought. Henry Brinton received a thorough training as a machinist, first with the Christiana

HENRY BRINTON

Machine Co. and later with Bement, Miles & Co. and Colt's Armory at Hartford, Conn. His first work in the line of knitting machinery was on the Branson knitting machine at Belle Fonte, Pa. His connection with the Branson Co. was broken several times on account of financial difficulties of that concern. When he rejoined them for the third time in Philadelphia, he was for several years superintendent of their shops. In 1888 Mr. Brinton began to manufacture knitting machines on his own account in the partnership of Brinton, Denney & Co. Five years later J. E. Lonergan purchased Mr. Denney's interest and the name was changed to H. Brinton Co. Mr. Brinton's work in the improvement of automatic cylinder knitting machines of the latch needle type was of great importance in the wonderful development of this class of machinery. He held patents on the knitting machine sinker mechanism with the sinker driven from below the stitch level. On ribbers Mr. Brinton developed the ribber pattern wheel

mechanism with movable pins which, although brought out twenty years ago, is still standard today. He also designed splicing devices for inserting an extra thread. A ring in the dial cap for operating multiple feed rib machines and more recently a simplified stop motion and improved two speed drive for ribbers were other inventions. Mr. Brinton aimed to perfect a mechanical idea and reduce it to its simplest terms and that has been a feature of the Brinton machinery. He was married to Rachel Cawley, of Swedesboro, N. J., who together with a daughter and two sons survive him.

Edward Tredick, president of the Nye & Tredick Co., died Tuesday, February 17, at his home on Walnut St., Philadelphia, Pa., after a brief illness. Mr. Tredick was one of the original partners of the firm of Nye & Tredick, builders of circular rib knitting machines, and has long been identified with this business. Mr. Tredick was fifty-eight years of age. He came to Philadelphia in 1885. His birthplace was at Dover, N. H.,

EDWARD TREDICK

where interment was made. Mr. Tredick was unmarried and is survived by two sisters, Mrs. Charlote Nye of Wildwood, N. J., and Mrs. A. M. Martin of Bristol, Pa. Mr. Tredick was a member of the Union League of Philadelphia, Aronimink Country Club, the New England Society of Pennsylvania and he was also a member of a Masonic fraternity and the Philadelphia Lodge of Elks. His personality and good business qualities has made for him a large circle of friends in the knit goods fraternity who will mourn his loss. The business will be continued as heretofore at 718 Cherry St., under the management of John C. Brewin, formerly secretary and treasurer, who has long been closely identified with the management.

Wilbur Emery Bennett, president of the First National Bank of Spartanburg, S. C., and formerly president of the Spartan Cotton Mills and the Chesnee Cotton Mills, died at his home in Spartanburg. His wife and several children survive him.

Thomas Boggs, president of the firm of Thomas Boggs & Sons, Inc., carpet manufacturers at Philadelphia, Pa., died at the age of 66 years. He was also president of the Model Mills Co.

William A. Goddard, overseer of the crabbing department at the Washington Mills, Lawrence, Mass., was instantly killed while oiling a shafting, his clothing having caught in the belt. He was 49 years of age and leaves a wife, one son and three daughters.

Frank P. Pendleton, a retired woolen machinery manufacturer, died at his home in Philadelphia, Pa., at the age of 79 years. He was formerly a member of the firm of James Smith & Co., and also the James Smith Woolen Co., but had retired from active business several years ago. One son and two daughters survive him.

John J. Fulton, for thirty-five years superintendent of the J. M. Quimby & Co., carpet manufacturers, Newark, N. J., died at the age of 68 years of paralysis. He is survived by five daughters.

Walter D. Miller, superintendent of the Nashawena Manufacturing Co., New Bedford, Mass., died at his home in that city. He was born in Clinton, Mass., May 18, 1855. His wife and one son survive him.

Henry Garratt, overseer of the spinning department at the Greylock Mill, Williamstown, Mass., was stricken with heart failure on the street while running for a car in North Adams, Mass., and died instantly. Mr. Garratt was well known in New Bedford and Fall River and was a prominent member of the St. Andrew's Episcopal Church. He is survived by a wife and four children.

Edward Milner died at his home in Moosup, Conn., in his seventy-second year. Mr. Milner formerly operated what is now known as the Moosup Mills, owned by the American Woolen Co. He was born in England and came to this country when four years of age. He was educated at the public schools at Westerly, R. I., and later at a business college in Poughkeepsie, N. Y. He started his business career in Montville, Conn., later starting the manufacture of woolen goods at Old Lyme, Conn., and Plainville, R. I. He represented Plainfield, Conn., in the House in 1887 to 1891 and then was sent to the State Senate by the 17th district in 1894.

Martin Van Buren Buker of Biddeford, Me., one of the oldest citizens of that section, died at his home after a brief illness at the age of 81 years. He was overseer of carding at the Pepperell Manufacturing Co. for a number of years and became an expert in the handling of cotton. He is survived by a son and three daughters.

New Publications

Any work noticed under this heading can be obtained, postage or express charges free, by sending the price listed to Lord & Nagle Company, 144 Congress St., Boston, Mass. A catalogue of textile books in the English language will be sent free on application.

Ventilation and Humidity in Textile Mills and Factories; by Cecil H. Lander; 175 pages, 4 3/4 by 7 1/4; Lonhmans, Green & Co., New York. Price $1.50.

The question of humidity and ventilation in textile mills has attracted much attention during the past few years, it having been the subject of a prolonged investigation by the British government with the object of providing suitable regulations that would safeguard the health of the operatives and at the same time enable the manufacturers to operate their mills to the best advantage. It is because of this awakened interest that the author has written this book. The subject is considered under the following heads: Temperature, Humidity and the Purity of the Air; The Principles of Humidification; Temperature Conditions in Textile Factories; Method of Cooling by Abstraction of Heat; The Effect of Design and Consumption on Maximum Temperatures; Regulations as to Humidity and Ventilation in the Cotton Cloth Factories; Record of Humidity for Use in Humid Sheds of Cotton Cloth Factories; Form of Register of Hygrometer Readings Indicating Contravention of Regulation.

Factory Organization and Administration; by Hugo Diemer; 370 pages, 5 by 9; McGraw-Hill Book Co., 239 West 39th St., New York. Price $3.

The object of this book, of which this is the second edition, is to provide managers of manufacturing companies with information regarding the best methods of management. The book deals with the purchasing of material and supplies, the calculation of costs and systematic records of production. The material for the work has been derived from lectures delivered by the author to senior students in engineering colleges. He treats the subject under the following heads: The Principles, Field and Methods of Industrial Management; Industrial Finance; Organization and Control; Typical Factory Organization; Factory Accounts; Departmental Reports; Factory Location; The Planning of Factory Buildings; Equipment of Labor and Labor Problems; The General Office; The Order Department; Bills of Material; The Drafting Department; The Pattern Department; The Purchasing, Stores and Stock Departments; The Production Department; Foundry Systems, The Machine Shop and Tool Department; Shipping and Receiving Departments; Time Taking; Cost Department; Aids in Taking Inventory; Inspection Methods in Modern Machine Shops; Rate Fixing and Time Studies; Wage Systems; Principles Underlying Good Management; A Biography of Works Management.

Work, Wages and Profits; by H. L. Gantt; 292 pages; 5 by 7 1/4; The Engineering Magazine Co., New York. Price $2.00.

The second edition of this work which has been revised and enlarged has recently been issued. It deals with the question of efficiency and the management of manufacturing enterprises, the subject being handled under the following heads: The Application of the Scientific Method of the Labor Problem; The Utilization of Labor; The Compensation of Workmen; Day Work; Piece Work; Task Work with a Bonus; The Task Idea; Training Workmen in Habits of Industry and Cooperation; Fixing Habits of Industry; Prices and Profits; A Practical Example.

Spinning of Animal and Mineral Fibers (Filature des Fibres Animals et Minerales); by D. DePrat; 482 pages, 3 3/4 by 6; L. Mulo, 12 rue Hautefeuille, Paris, France. Price $1.75.

This volume, which is one of a series known as the "Manuels-Roret," deals with the spinning of animal and mineral fibers, the subjects being considered under the following heads: 1, Different Grades of Textile Fibers; 2, Numbering Yarn; 3, Yarn Testing Apparatus; 4, Wool; 5, Processes Used for Both Carded Woolen and Worsted; 6, Processes of Spinning Worsted; 7, Spinning Carded Woolen; 8, Carbonizing; 9, Spinning Shoddy and Dead Wool; 10, Other Animal Fibers; 11, Equipment of a Wool Spinning Mill; 12, Spinning Silk; 13, Spinning Silk Waste and Schappe; 14, Silk from Various Countries; 15, Artificial Silk; 16, Asbestos; 17, General Information. The book is freely illustrated and the text is in French.

Encyclopedia of Needlework; by Th. de Dillmont; new edition revised and enlarged; 789 pages, 3 1/2 by 5 1/2; published by the author, at Mulhouse, Alsace, Germany. Price $1.

We have received a copy of this work, which consists of an illustrated description of the different kinds of hand needle work. The contents are arranged under the following heads: Plain Sewing, The Sewing and Embroidering Machine, Mending, Embroidery upon White Stuff, Linen Embroidery, Embroidery on Silk and Velvet, Gold Embroidery, Applique Work, Tapestry, Knitting, Crochet Work, Tatting, Macrame, Netting, Openwork on Linen, Embroidered Laces, Needle-made Laces, Pillow Laces, Needle Work Trimmings, Miscellaneous Directions.

Meier's Directory of Exporters in Europe and Importers in Asia, Africa, America and Australia, 1913-14; 960 pages, 5 by 7 1/2; published by Rudolf Dudy, Alsterdamm 2, Hamburg, Germany. Price $5.00.

The seventh edition of this directory of exporters and importers has recently been published with the lists carefully revised and extended. Section 1 contains the addresses of the exporters in Europe. These are classified by countries and location of business, the names of the firms being arranged alphabetically with the street addresses, class of goods handled and the countries of export an-

nexed. Section 2 is a trade index with the firms classified according to the kind of goods handled. Section 3 contains a list of importers in the different countries. These are arranged by country and place of business, the street address and grade of goods handled being annexed. Although the text is in German, the book owing to its character as a directory can be used by those not familiar with the German language.

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Calendar for the Knitting Industry, 1914 (Kalender fuer die Wirkerei und Strickerei Industrie); by Joseph Worm, director of the Technical High School at Chemnitz; 154 pages, 4 by 6; Max Jaenecke, Leipzig, Germany. Price 50 cents.

The calendar in this little volume is followed by a well arranged collection of technical data bearing on the knitting industry in Germany, this part of the work being arranged under the following heads: Raw material, preparation of yarn for knitting, principles of knitting, finishing of knit goods, useful recipes, tables giving comparison of yarn numbers, knitting machine gauges, yarn counts for different needle gauges, production of knitting machines, and speed tables. The text is in German.

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BUSINESS LITERATURE

The Phenix Sight Flow Indicator; The Richardson-Phenix Co., Milwaukee, Wis.

Bulletin No. 57 illustrates and describes how this unique device can be inserted in any pipe line carrying a liquid, such as water lines of water cooled transformers and the supply pipes of water jackets of gas engines and air compressors, and how it shows at a glance or indicates electrically by lighting a lamp or ringing a bell when the flow of liquid is interrupted. This improvement has made it especially suitable for use on water cooled transformers.

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S. K. F. Self-Aligning Ball Bearings; The S. K. F. Ball Bearing Co., 50 Church St., New York.

An 86-page booklet describing and illustrating the S. K. F. ball bearings, which provide the unique and distinctive feature of self-alignment. They demonstrate their high merit and have shown themselves adapted to a wide range of service.

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Birch Brothers, Somerville Machine Works, Somerville, Mass., have issued a calendar with an attractive figure of a young girl "waiting at the gate" that will find a place in many mill offices. Accompanying the calendar is a detailed list of the textile finishing machinery built by this concern, including dyeing machinery, dry and wet finishing machines, French napping machines and Albert Birch's Coronation sewing machine, of which over 10,000 have been sold all over the world.

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Organization; by C. A. Trowbridge, Mishawaka, Indiana.

A booklet of the above title contains some interesting ideas on the subject of organization in its relation to cooperation and competition, which is well worth reading.

Industrial Notes

THE FIRM OF LAVIGNE & SUTER FORMED

Announcement is made of the formation of the partnership of Lavigne & Suter, 200 Fifth Ave., New York, which have taken over the mill supply business formerly handled by J. F. Lavigne, son of the late P. Lavigne of 118 East 25th St., and Alfred Suter of 200 Fifth Ave. Important economies are made possible by this combination of their interests and they hope to give their customers in the textile trades more effective service. Both Mr. Suter and Mr. Lavigne were in Europe in December and entered into contracts with the following firms for their sole agencies in the United States:

Lucien Vally Freres, manufacturers of reed wire and reed making machine; Esbrayat & David, manufacturers of twisted wire heddles; A. & C. Chaize Freres, manufacturers of textile tricolor heddles; and Carl Semper & Co., manufacturers of soldered wire heddles.

The reed wire and reed making machines of Lucien Vally Freres and the soldered wire heddles of Carl Semper & Co. are used largely by cotton manufacturers. Mr. Suter has moved his mill machinery, schappe and cotton yarn business to Room 915 in the Fifth Avenue Building, where he has considerable more room, and which will also be the headquarters of Lavigne & Suter.

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TEXTILE MACHINERY EXHIBITION AT BOSTON

Over two hundred representative concerns have contracted for space, and while there are still some desirable locations open, General Manager Chester I. Campbell is confident that every foot of the 125,000 square feet of space will have been allotted before the doors open, making what is without question the greatest textile machinery exhibition ever held in this country. The date is April 27th to May 2nd.

The interest in these exhibitions for mill men is the opportunity of seeing grouped together for convenient inspection most of the new developments in textile machinery in the preceding two years, and there promise to be important new displays for their attention in the coming show.

The power department grows in interest each year and the exhibitions will include what is new and important in the transmission of power in textile plants. The Harrison Safety Boiler Works of Philadelphia will have a very large exhibit, including their new flow recorder, feed water heaters, oil separators, etc. William Sellers Co. will have a full line of power transmission machinery. They have this year doubled the space occupied by them in former exhibitions which permits them to show their American system rope drive in operation. The Morse Chain Co. will show a heavy Morse chain drive of 100 h. p. capacity as well as light transmission. The Boston Belting

Co. has taken a large space and will show a great variety of textile mill supplies, including gutta balata belting, special hose for compressed air, etc. The S. K. F. Ball Bearing Co. will show several different textile machines in operation equipped with their self-aligning ball bearings: viz., the Curtis & Marble shoddy picker, Fales & Jenks twister, James Hunter Machine Co.'s garnett, C. G. Sargent's Sons' stock and yarn dryer fan, Fales & Jenks' spindles, Whitin spindles, Saco-Lowell twister, Universal winder and Davis & Furber Machine Co.'s napper roll. This will show a wide variety of applications.

These are only a few of the many interesting exhibits, details of which have not yet been fully completed and announced.

INCREASING GERMAN USE OF ARTIFICIAL SILK

Manchester (England) Guardian

Although reliable statistics regarding production and consumption of artificial silk in various countries are not available, there is little doubt that Germany would head the list in both cases. Last year 268,000 kilos (590,800 pounds) of artificial silk were used in Krefeld alone, chiefly in the manufacture of men's ties, whereas only 3,500 kilos (7,700 pounds) were consumed by Swiss manufacturers. The Lyon silk industry also appears to view the chemical product with some suspicion, the total value of the goods made there from artificial silk last year being estimated at not more than $386,000.

The German silk trade began to show increased interest in the employment of artificial silk in 1906, when the price was reduced from 20-22 marks per kilo to 16-17 marks per kilo (from $2.15-$2.37 to $1.72-$1.83 per pound). Previously the high price and various defects in the product have prevented its application in the piece-goods trade. Considerable technical difficulty was met with by weavers, and after about two years most silk manufacturers abandoned the synthetic product. Improvements in the process of manufacturing artificial silk were made, which resulted in the production of an article suitable for weaving, and in 1910 the product was again taken up not only by piece-goods manufacturers but also by those engaged in the velvet and plush trade.

The piece-goods trade uses chiefly the finer qualities, from 70 to 100 deniers, nitrocellulose silk being almost exclusively employed, while velvet manufacturers take the coarser qualities, about 140 deniers, principally viscose silk. Viscose silk is preferred in the velvet trade owing to its brilliant appearance, while the producers of ties, etc., prefer nitrocellulose silk on account of its greater resemblance to the natural product. During the past three years the price of nitrocellulose silk has ranged between 11.75 marks and 14.5 marks per kilo ($1.27 and $1.56 per pound), and that of viscose silk between 12 and 13 marks per kilo ($1.29 and $1.40 per pound).

The Pacific Mills, Lawrence, Mass., have ordered two 25 h. p. and two 35 h. p. motors for electric drive from the General Electric Company.

STICKS FOR DYEING MACHINES

Every buyer of skein yarn knows that imperfect sticks cause tangling and tearing of the yarn, increasing waste and causing trouble in winding and resulting in an increased number of knots in the yarn. Frank Bailey, Cedar Brook, Camden Co., N. J., manufactures dye sticks, dry poles and trucks of the best material which remain smooth and have no places on which the yarn can catch and become torn. He has made a careful study of the manufacture of these products with a view of removing the difficulties which we have named and is now supplying over seven hundred dye-houses in the United States and Canada with dye sticks, drying and sulphur house pulleys, winding sticks, trucks for dye houses, dry rooms and other mill purposes.

The Bailey dye-house trucks have self-oiling wheels that make them run easy. They are smooth so that the yarn will not catch on them, are properly balanced and well finished. Mr. Bailey builds box, slatted and platform trucks, with iron ends, or any special truck required. Where white or bleached goods are needed, he builds a truck that is white enameled inside, so that there is no danger of soiling or staining the goods.

The machine sticks made are for the Klauder-Weldon, John H. Giles, Lorimer, Hussong and other makes of dyeing machines, and are all made of the best material in any size required. These sticks are all hand dressed, perfectly smooth, and are either plain or burnt finish. Mr. Bailey is furnishing two-thirds of the largest mills in this country and Canada with their machine sticks, dry poles, hand kettle sticks, made from natural water grown cedar.

COTTON SPINNING IN KOBE DISTRICT

Vice Consul Walter Gassett, Kobe, Japan

According to information furnished by the Japan Cotton Spinners' Association, the number of spindles of the 44 spinning companies (exclusive of factories under construction) in the consular district of Kobe on June 30, 1913, was 2,239,532 ring and 49,360 mule, in addition to 309,672 doubling spindles and 23,783 looms. Compared with the end of the preceding half year (Dec. 31, 1912) the number of ring spindles shows an increase of 114,552, doubling spindles 348, and looms 1,885, but there is a decrease of 2,388 in the number of mule spindles.

On June 30, 1913, the capital of the 44 companies amounted to $57,472,387, of which $41,076,489 was paid up, and the reserve fund was $15,546,494, as compared with $52,357,927, $36,038,515, and $13,215,084, respectively, on Dec. 31, 1912.

Most of the spinning companies in the Kwanto district (north-eastern Japan) are not doing much business and the tendency seems to be for the cotton industry to concentrate more and more in the Kwansai district (Osaka).

A large amount of milling machinery was ordered from America and England in 1912 and 1913, but much of it was delayed by strikes in England. The further postponements of delivery that are expected are not unwelcome in view of the industrial depression in Japan.

A NEW YARN HOUSE IN NEW BEDFORD

The New Bedford Yarn Exchange, a new brokerage house connected with three Southern mills and several well known Northern yarn manufacturers, has opened an office in the Times Building, New Bedford, Mass. The new firm will handle all of the standard counts and novelty yarns dealt in by American manufacturers. They will make their own novelty yarns.

J. T. Fyans of Fall River, a man well known to the mill trade, is president of the new brokerage house. The treasurer, E. H. Shurtleff, has been connected with the New England Cotton Yarn Co. and the Nonquitt Spinning Co. of this city for several years and has been in a position to know the requirements of the textile trade.

The manager of the new office, J. L. Harring, is a man who knows yarn qualities thoroughly. Until a short time ago he acted as superintendent of the Bennett mill of the New England Cotton Yarn Co.

DOES IT PAY TO SAVE POWER?

A striking illustration is given in answer to the above question by the S. K. F. Ball Bearing Co., 50 Church St., New York City, in the record of a recent test in a New England woolen mill. A record was made of the power consumed on two shoddy pickers. Under full duty, they required 14 h. p. each. This was not abnormal. They removed the main cylinder bearings from the machine and replaced them with S. K. F. self aligning ball bearing boxes. The change to ball bearings required no modification in the picker frame construction. Then, under exactly similar duty each machine required but 4.92 h. p. Here was a saving of 65 per cent. in power consumed.

It was proven by this test, that the ball bearings would pay for themselves in thirty days and net a saving in money to the mill of $350 per machine annually. This saving was for power only; besides that is the saving effected in repairs, lubrication and shop attendance costs. In proportion they are just as great and quite as important.

A NEW TEXTILE CHEMICAL CONCERN

The Jaffrey Manufacturing Company is a new concern at 18 Dunham Pl., Brooklyn, N. Y. They are manufacturers of textile chemicals and are making a specialty of "Solvene", the one boil bleaching solvent. This solvent is being used by many bleachers of cotton piece goods. The Jaffray Manufacturing Company will be glad to furnish samples and quote prices.

The Merrimack Mfg. Co., Lowell, Mass., will place in operation in its power plant a 3750 kv-a. Curtis turbo-generator with 14 panel switchboard and accessories, and will also install a 100 k. w. motor-generator set. This unit will be built and installed by the General Electric Company.

*Georgia, Summerville. New machinery is being installed in the Summerville Cotton Mills and night work will be discontinued.

STANDARD TESTS FOR HEMP

By CONSUL GENERAL GEORGE E. ANDERSON, Hongkong, British China

The sale of hemp is now made upon selection and valuation by experts, who judge the quality and value by sight and touch, their judgment being founded upon years of experience. The trade in the fiber, however, has long found itself embarrassed in many ways by lack of proper standard tests for establishing the various grades. With a view of avoiding this difficulty the fiber division of the Bureau of Agriculture at Manila is conducting extensive tests to establish scientific standards for the Philippine fiber production. The method of test followed is to select average samples of the fiber, cut them into meter lengths, weigh each sample to the fraction of a gram, and then ascertain the breaking strain of each strand. The average breaking strain per gram meter, secured by dividing the registered breaking strain by weight of the sample being tested, is the accurate index of comparative strength and quality which is being used. Tests for single fibers are varied by tests with twisted fibers. The weight method is followed because a thick single fiber which will stand a strain of 3 kilos (6.6 pounds), for example, may not be so strong, comparatively, as a thinner fiber breaking under much less strain. The tests are to be continued for some time with all the various grades of fiber until it is conclusively determined what a fair standard for the various grades really is. The system of standardization will then be put into effect in the Philippine hemp market.

FINISHING COMPOUNDS

The specialty of the Arabol Mfg. Co., 100 William St., New York, for years has been the making of finishing compounds, sizings and starches of all kinds for the textile industry. They are ready at all times to turn out products to suit any particular needs of the trade.

MANILA HEMP SUPPLY

Consul General George E. Anderson, Hongkong, Dec. 23

Present indications are that the expected decrease in production of Philippine hemp as a result of the storms and droughts of the past two years will not be as great as has been anticipated. The annual report of the Director of Agriculture of the Philippines shows that the loss in the current fiscal year will be about 10 per cent. less than in 1912 and the loss next year will run about 35 per cent. less than last year. Of the prospective exports the report of the director says, the quantities noted being changed to American gold:

"From estimates made by the chief of the fiber division, based on personal field investigation, it would appear that a shortage of 30 to 35 per cent. in the total production for the islands can be reasonably expected to occur, taking effect during January, 1913, and extending to May or June, 1914. The estimate, however, may possibly be reduced, owing to the fact that a large number of plantations which have been almost neglected before the recent considerable rise in the price of

abaca (hemp) have again been brought under cultivation.

"Summing up the whole situation as it now stands, and taking into consideration every factor which tends to accelerate or counteract the effects of the droughts and typhoons of 1912, it is believed that the production of abaca may be safely estimated at 145,000 metric tons for the fiscal year 1913, or about 10 per cent. less than 1912; and at not less than 105,000 to 110,000 metric tons for the fiscal year 1914, or about 35 to 30 per cent. less than 1912. The quantity available for export is usually 5,000 to 10,000 metric tons less than the actual production.

"The exports during the fiscal year 1912 were 154,047 metric tons, valued at $16,283,510, or an average of $10.60 per 220 pounds. The exports for this fiscal year are estimated at about 140,000 metric tons, valued at about $22,500,000, or an average value of $16 per 220 pounds. The rise in value began in July, 1912, and reached its maximum in January, 1913, when good current sold in the Manila market at $26.75 per 220 pounds. Since January, however, the price has gradually declined, and at the present time the daily quotations give good current at about $20 per 220 pounds."

High prices for this product of a "natural monopoly" of the Philippines have stimulated production in many districts, and improved methods of cultivation also are increasing production, although so far little improvement in the quality of the fiber produced is to be noted. There is every reason to believe, however, that with the resumption of normal conditions after the next fiscal year the production of Philippine hemp will be larger than it ever has been.

BLANKETS IN CHINA

CONSUL GENERAL GEORGE E. ANDERSON, Hongkong

In March attention was drawn to the increasing use of blankets and similar goods by the Chinese as evidenced by the increasing imports of such goods reported by customs returns. It was indicated that there were large imports of such goods in the high silver exchange years of 1906 and 1907, which fell off greatly in the low exchange years of 1908 and 1909 and gradually increased in the latter year until in 1910 the imports amounted to 765,597 pounds, valued at $164,556. Apparently high exchange is again resulting in the increased imports of such goods, for while in 1911 the imports of woolen blankets and rugs increased to 784,469 pounds, valued at $213,447, without much assistance from high exchange, the imports in 1912—a year of high exchange—increased to 1,342,082 pounds, valued at $337,576. This was the largest importation in the history of the trade, except 1906, which was an exceptional year in imports of all fabrics.

The imports of the past year, while doubtless influenced considerably by the increased buying power of Chinese silver, represent to a greater extent than in past years an actual normal increase in the use and importation of such goods. This is further evidenced by the increase in imports of cotton blankets from a value of $185,866 in 1911 to a value of $364,016 in 1912. The cotton blankets are of the cheapest, lightest weights, largely of single widths.

This great increase in latter years has taken place in spite of the increased output of local woolen mills in central and northern China. There has been a notable increase in imports of such goods through and from Russia; Germany and Great Britain are increasing the proportion of goods sold direct to Chinese ports, but about a third of the trade on an average continues to pass through Hongkong. Nearly half of it is with Manchurian ports, though Canton and Yunnan ports take considerable quantities. In neither the cotton nor woolen trade in such lines, however, has the United States had any material part.

UNITY IN POWER PLANT DESIGN

By CHARLES R. TROWBRIDGE of the Dodge Mfg. Co.

It has been said of the old-time machine shop that it was not planned beforehand, but that it "grew," and that it generally grew along lines which were not those of greatest efficiency, but those of least resistance; that is, an establishment with small beginnings developed as the business was prospered, by the erection of additional buildings on the most convenient adjacent ground, and power was either sent by shafting, belting or rope from the old engine room, or else another engine was installed in the new buildings. When, later on, further extensions became necessary, they were placed where the ground could be acquired, and the operation repeated until the entire plant resembled a sort of village, or aggregation of structures, by no means such as would have been erected had the whole establishment been planned from the beginning.

In like manner, the question of the distribution of the power through such works was effected in the manner most convenient at the time, and hence by no means according to methods which would have been employed if a general scheme had been planned out in advance.

Often the above procedure was the best which could be used under the conditions, and the use of a predetermined layout for the final result would have been impracticable. At the present time, however, the construction of great manufacturing establishments from the start has become a distinct branch of engineering work, and the result is the design of the entire establishment, as complete in detail as is the case with a great ocean steamer or a metropolitan sky-scraper.

In no department of such a plan is more attention demanded than in the design of the power transmission system. Next to the generation of the power, to the boilers, engines, and details of the power house, comes the delivery of the power from the center where it is generated to the extremities where it is utilized. A considerable portion of the power must necessarily be consumed in the journey from the engine to the tool; how much is thus absorbed depends very largely upon the manner in which the transmission is planned, how well it is adapted to the special conditions which exist, and how accurately the plans of the

experienced engineer are executed in the construction.

In the consideration of the generating portion of the power plant the greatest care is taken to secure coordination of the various elements. The amount of power to be used is carefully determined, as well as the quantity of steam demanded for other purposes. The boiler capacity and the dimensions of the engine are thus intelligently settled, and in like manner the system of piping, water supply and other essentials are worked out. The modern manufacturers of power-transmission equipment follow out similar methods. The situation of the various parts of the plant are studied to determine whether shafting, belting or rope-drive is to be recommended. The amount of power demanded in the several operations is estimated, and has an important influence upon the choice of methods and dimensions, and when the whole has been laid out it is constructed in the light of long experience, and then assembled, tested and its completeness assured, before it is finally erected in position for service.

It is evident that such a procedure must result in the attainment of a far greater degree of efficiency than is possible in any hap-hazard growth, building up department by department, often with no other guide than the rule-of-thumb, and frequently with no adequate determination of the actual requirements of the situation. The modern method is both efficient in itself and makes for higher efficiency of the men by whom it is operated, and it marks one of the forward steps in mechanical evolution.

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AFRIDI WAX CLOTH

Consul H. D. Baker, on special commercial service in India

While visiting Peshawar, on the Northwest Frontier of India, I was much interested in a local production, known as Afridi wax cloth. This is a cotton fabric decorated with a waxy substance called "roghan"—a preparation obtained from the wild safflower plant—by the Afridi tribesmen who inhabit the mountainous districts in the neighborhood of the famous Khyber Pass between India and Afghanistan. Very attractive specimens of this work are offered in the bazaars of Peshawar and some other cities of northern India for as low as 33 cents apiece. A sample of this work obtained at this price is forwarded (and may be seen at the Bureau of Foreign and Domestic Commerce, Washington, D. C.).

On later visiting the Lahore Museum of the Punjab, at Lahore, I observed some specially interesting specimens. The following description of the industry appears in the Guide Book of the museum:

"The production of what is known as Afridi wax cloth is one of the most interesting of all the art industries of India. It is the process of decorating a piece of cloth with patterns drawn in a substance known in India as 'roghan.' This 'roghan' is composed of the oil expressed from the 'polli' seed (wild safflower, or Carthamus oxyacantha), which, after being boiled for 12 hours, is thrown into cold water, when it assumes a new form and becomes a thick gum. With this are mixed any required colors, yellow being obtained by orpiment, red with red lead, white with white lead, and so on.

"The worker takes a piece of the colored 'roghan' in his left hand, and with an iron style in his right gathers up sufficient of the substance to form a dangling thread from its point. This hanging end of 'roghan' he applies to a piece of cloth, and, moving the style in the direction of the pattern, draws out the thread in the form of a stringy line wherever he wishes it to go. Briefly, the process corresponds to drawing a pattern in thick treacle by means of a skewer. When the 'roghan' he has collected on the style is exhausted he gathers up a fresh supply from the piece in his left hand—which may be referred to as his palette—and continues with the design.

"The ease and rapidity with which the worker draws out the required pattern with the long stringy thread dangling several inches from the point of the style must be seen to be appreciated.

"As this line of 'roghan' is applied to the cloth it is fixed in its place by the tip of the moistened finger being dabbed all along its length. This flattens out the thread somewhat, making a broader line, and also causes it to adhere firmly to the surface of the cloth. In the case of flowers it enables a shapeless drop of the 'roghan' to be pressed into the resemblance of a petal. The cleverness with which the substance is manipulated and the variety of shapes that the worker can produce with a spot or thread of 'roghan' and a dab of the finger are not the least wonderful parts of the art.

"Apart from the colors obtained by the 'roghan,' other rich effects are produced by the pattern, before it is dry, being dusted over with powdered mica to give it a silvery glitter, or gold leaf or imitation gold and silver is similarly applied. After an hour or so, when dry, the 'roghan' becomes quite permanent and will stand almost any amount of brushing and washing.

"The art is mainly carried on in the towns of northern India, such as Peshawar, Lahore, Simla, etc., but it is also to be found in a slightly modified form in Kach and Baroda. Wherever the cloth is made its production is almost invariably in the hands of Afridis, hence the name. The industry is believed to have been practiced from early times in the Afridi country, principally in the ornamentation of shawls and other garments worn by females. Some fairly old patterns of work are to be seen at the Lahore Museum, together with a few specimens of modern workmanship. The difference in the two styles is most striking. The latter show considerable traces of Japanese influence, and are usually found on tablecloths and articles of a similar nature."

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The Monument Mills, Housatonic, Mass., will add to its electrical equipment eight transformers ranging from 40 kv-a. to 600 kv-a. and switchboard recently ordered from the General Electric Company.

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The Profile Cotton Mills, Jacksonville, Ala., will place in operation in its power plant a 250 kv-a. alternating current generator purchased from the General Electric Company.

OUT FOR A RECORD

Running uninterruptedly night and day since October 8th, a four-ton KisselKar truck owned by the National Cartage Company of Detroit, Mich., is out for a record. The truck is driven in three shifts of eight hours each in hauling steel for truss concrete work. The run is about a mile and a half and the average weight hauled daily is about 79 tons. Not until early in January was a repair or adjustment necessary and that was of minor consequence.

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NEW LOOMS

The Toronto Carpet Mfg. Co. has installed a number of new Schoenherr Wilton and chenille carpet looms. These looms are built by the Saechsische Webstuhlfabrik of Chemnitz. This concern is one of the oldest builders of looms in Europe and their products enjoy a high reputation. This firm is represented in this country and Canada by A. W. Buhlmann, textile engineer of New York.

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THE FREDERICK OSANN COMPANY

A number of short speeches were made. Frederick Osann, president of the company, urged each employe to do his best, both for his own good, as well as for the benefit of the organization. He expressed pride in having an efficient, loyal staff, which, he said, was capable of bigger and better things to come. R. L. Lyons, a director, and one of the original inventors of the Union button sewing machine, predicted that the Osann Company would show an even larger growth in the future. Mr. Lyons emphasized the importance of being on the alert to grasp opportunities, and his speech was one of the best of the evening.

C. J. Sibbald, who invented several important improvements in connection with the Union button sewer, expressed his pleasure at being present, and entertained the diners with some capital stories. J. B. Coyle, general counsel of the company, pointed out that the man who worked with his brain exerted just as much effort as the skilled mechanic, who worked with his hands and brain. Mr. Coyle reminded his hearers that the three "C's", Cooperate, Concentrate, Consummate, spell success. R. L. Plumley, factory expert, complimented those responsible for the progress made, and paid a personal tribute to the president of the company, with whom he has been associated practically from the start of the business. Everyone present voted the banquet a great success, and the good fellowship and fraternal spirit which prevailed, speaks well for the future of the company.

The progress of the Osann Company has been rapid. Starting in a little office some eight years ago, Frederick Osann, with two associates, laid the foundation of the present institution. From a concern of three individuals, to an organization employing forty to fifty people, with offices in New York and Boston, is an achievement brought about in less than ten years.

The company is represented in nearly all the principal garment making centers throughout the United States, and does an extensive export trade with Europe. The Osann Company have in addition established strong connections abroad with the Jones Sewing Machine Company of Guide Bridge, England, and is probably the largest independent concern of its kind of the old world.

The Osann business was incorporated in 1907. About two years ago the Chauvet & Coulter Company was purchased, and last fall the Union Button Sewing Company was bought; both of these concerns were manufacturers of special sewing machines, and their acquisition by the Osann Company materially strengthened the position and prestige of the latter.

Among the machines handled by the Frederick Osann Company are the following: Union flexible stitch button sewer; Jones high speed lock stitch machine: Chauvet & Coulter special machines; Osann fur and glove overseaming machines; Universal electric cloth cutter; Chandler side and accordion plaiting machines; rapid eyeletting machines; scalloping machines; pinking machines; cloth slitting machines; buttonhole machines for the tailoring trade; sample cutting machines.

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THE SOUTHERN NEW ENGLAND CLUB

The February meeting of this club was held at the Narragansett Hotel, Providence, R. I., on February 21st, about seventy-five members and guests being in attendance. Lieut. Gov. Burchard delivered an address which had special reference to Washington's birthday. President Dexter discussed the management of operatives and called attention to the difficulties that surrounded this problem owing to the large number of foreigners in the mills who were not acquainted with our language or American conditions.

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SLUMP IN LACE MAKING MACHINES

Nothing exemplifies the condition of the lace trade more than the prices these machines obtain at sales by public auction. Between the high rates obtained during a run of good trade and those realized in times of depression there is no comparison. Machines which are making goods in good demand will fetch anything from £400 upwards, which in a prolonged bad time would not command a tenth part of that price. During the last two or three years there has been considerable slackness in the demand for goods made by certain qualities and gauges of Lever's machines, consequently the prices obtained at any forced sales of these have been very low indeed. During the last year there were several such sales, one plant of eight machines with accessories, costing originally about £3,000, going for £500. Another plant of six good Lever's machines, with winding plant, etc., lately realized only £300. On February 3, 1914, a plant of ten Lever's machines, all with carriages, bobbins, jacquard bars, beams, moulds, etc., including a winding plant, was sold by auction for a total of less than £120. It is, however, only fair to state that most of these machines had been in use some years, and that there does not appear to be so great a slump in the values of up-to-date machines. It will, however, illustrate the enormous depreciation in values caused by bad trade.—Textile Recorder, Manchester, Eng.

Recent Textile Patents

BLEACHING and Like Fluids, Apparatus for Preparing. 1,085,718. Crossley, A. Montgommery Buckley, London, Eng.

BOBBIN-HOLDER Ejector. 1,087,703. Frank H. Weitz, Duryea, Pa.

BOBBINS, Device for Heating Wound Thread. 1,085,787. Henry A. Bates, Middletown, Conn.

CLOTH SPONGING and Refinishing Machine. 1,086,086. Edgar F. Rummler, New York.

CLOTH-WORKING Machine. 1,086,967. George H. Wiemann, New York.

DRYING FIBROUS Materials, Apparatus for. 1,086,567. George Stone, North Andover, Mass.

DYEING MACHINE. 1,088,617. Jesse M. Payne, Summerville, Ala.

DYEING APPARATUS, Yarn Frame for. 1,087,070. Betrand A. Parkes, Barren Hill, Pa.

FABRIC or the Like, Device for Holding Strips of. 1,088,456. J. J. Schefer, Herisau, Switzerland.

FABRICS, Means for Spotting in One or More Colors. 1,087,859. Lionel Wild, Upper Norwood, Eng.

FIBER DECORTICATING Machine. 1,085,228. Owen Sheehan, New Bedford, Mass.

FLAX MACHINE. 1,085,310. Karl Wessel, St. Paul, Minn.

FLAX, Preparing. 1,086,270. G. H. Campbell, Toronto, Can.

CARDING ENGINES, Means for Dressing or Resetting and Grinding the Teeth of Licker-in or Taker-in Rollers Used in. 1,086,658. James Dronsfield, Oldham, Eng.

KNITTING MACHINE, Circular. 1,086,968. Frank Wilcomb, Pawtucket, R. I.

KNITTING MACHINE, Circular. 1,087,698. Harry Swinglehurst, Boston, Mass.

KNITTING MACHINE. 1,086,570. Everett H. Walker, Lowell, Mass.

KNITTING MACHINE, Circular. 1,087,954. Edward E. Kilbourn, New Brunswick, N. J.

KNITTED WEB and Making Same, Ribbed. 1,087,689. Robert W. Scott, Leeds Point, N. J.

KNITTING MACHINE. 1,087,545. John F. Nelson, Rockford, Ill.

KNITTED WEB. 1,087,688. Robert W. Scott, Leeds Point, N. J.

LOOMS, Weft Stop Motion for Weft-Replenishing. 1,088,009. Herbert Chadwick, Blackburn, Eng.

LOOM, Swivel. 1,087,462. Frederick F. Roche, Lincoln, R. I.

LOOM for Weaving Tubular Fabric. 1,088,061. A. E. Chernack, Providence, R. I.

TEXTILE or Other Fabrics or Materials, Apparatus for Stretching. 1,088,599. Andrew Livesey, Manchester, Eng.

TWISTER. 1,087,071. Alonzo E. Rhoades, Hopedale, Mass.

WINDING MACHINE. 1,088,367. Festus S. Rand, Providence, R. I.

WINDING MACHINE. 1,087,367. Arthur I. Harvey, Providence, R. I.

WINDING MACHINE. 1,087,433. John B. Bolton, Lawrence, Mass.

YARN DRYING Machine. 1,085,396. Thomas Allsop, Philadelphia, Pa.

RECENT TEXTILE TRADE-MARKS

46,223. Hosiery. Mark: "Marion." Owner: Marshall Field & Co., Chicago, Ill.

73,960. Knitted underwear. Mark: Olovnit. Owner: Shanghnessy Knitting Co., Watertown, N. Y.

60,929. Yarns of wool, linen, cotton and silk. Mark: A Potrait. Owner: Arnold O. Meyer, Hamburg, Germany.

72,721. Shirts, underwear, etc. Mark: Olus. Owner: Innovation Shirt Co., New York.

73,500. Thread and yarn. Mark: Anho. Owner: Noah Chertoff, New York.

74,389. Textile rugs, mats, etc. Mark: Hurrikana. Owner: Stephen Sanford & Sons, Amsterdam, N. Y.

74,859. Hosiery. Mark: Mephisto. Owner: Hugo Knobloch & Co., Hamburg, Germany.

68,801. Underwear. Mark: Queen. Owner: Robert G. Jennings, Elmira, N. Y.

74,495. Cotton and wool dress goods. Mark: Federal. Owner: Osgood & Silverblatt, Pittsburgh, Pa.

74,683. Woven yard goods and fabrics. Mark: Holly. Owner: Schermerhorn Bros., Chicago, Ill.

75,126. Thread. Mark: Red Top. Owner: New England Cotton Yarn Co., New Bedford, Mass.

75,127. Thread. Mark: Blue Top. Owner: New England Cotton Yarn Co., New Bedford, Mass.

72,820. Hosiery. Mark: Aristo. Owner: Maduro Mercantile Co., New York.

74,758. Underwear. Mark: Lusitania. Owner: Robert Reis & Co., New York.

74,759. Underwear. Mark: Olympic. Owner: Robert Reis & Co., New York.

75,164. Cotton piece goods. Mark: Arabia. Owner: Converse & Co., New York.

75,165. Cotton piece goods. Mark: Ranger. Owner: Converse & Co., New York.

75,166. Cotton piece goods. Mark: Water Witch. Owner: Converse & Co., New York.

75,168. Cotton piece goods. Mark: Florida. Owner: Converse & Co., New York.

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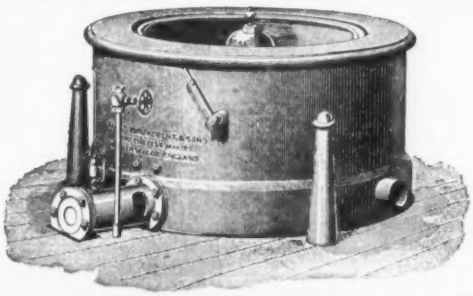

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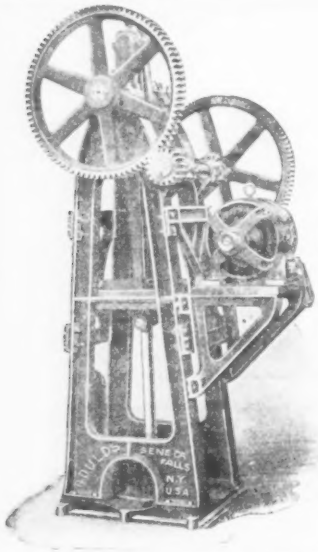

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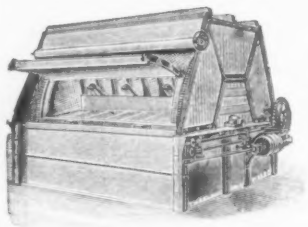

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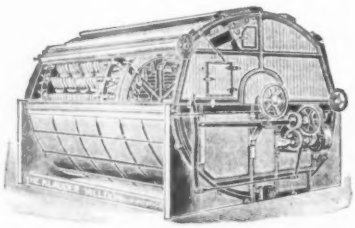

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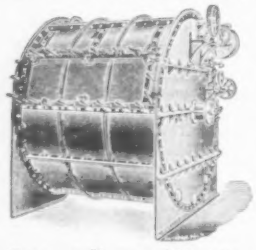

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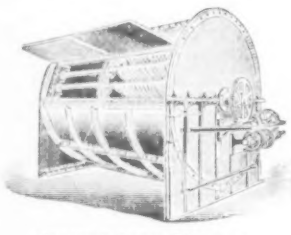

SULPHUR SKEIN MACHINE.

Buyers' Index

This department is conducted for the benefit of our subscribers. The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under headings to which they are entitled will please notify the publishers.

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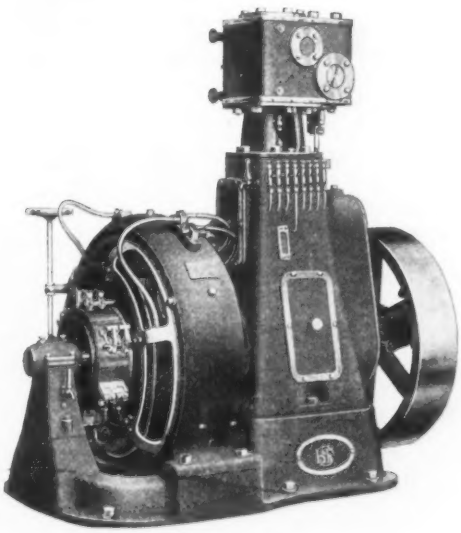

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Mindlin & Rosenman.
Montgomery, J. R., Co.
Whitman, William, Co.

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Anybody Can Operate It.

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30 EAST 42nd STREET, NEW YORK CITY

Publisher's Page

Your Best Investment

There isn't anything about making money that gives us a grouch. Fond as we may be of baseball, pool or auction pinochle, we like making money better.

They say it takes money to make money, and it's true. If we don't have any money we have to borrow it. Getting into business without capital is like getting into society without clothes. It can't be done.

Have you ten dollars in the bank or in the cash register?

If you haven't, go out and borrow it, because I have something I want you to use that ten for. No, don't send it to me. I've got ten of my own.

You can invest ten dollars right now where it will bring you ten tens, a hundred tens, perhaps more before the year is over.

How many trade papers are you taking? Are you taking ten dollars' worth a year? Are you paying ten dollars a year in subscriptions to trade journals and business magazines? If you are that's all I have to say to you, because you have made your investment and you will get the returns—unless you don't read those publications.

But if you are spending any less than ten dollars a year for trade and business literature you are saving money at a great expense. Every business man needs half a dozen trade publications or more. He needs the ideas they contain. His own ideas run out. He puts a mistaken value on his own ability if he doesn't take pains to find out what other people know.

Every dollar invested in trade journals that you will read is a dollar invested where it will bring you bigger returns than a hundred invested in goods.

Wouldn't you willingly give ten dollars for an idea that would enable you to increase your income, the receipts of your business or your salary a net hundred dollars? Well, if you knew where you could spend ten to that effect, wild horses couldn't hold you back from making the expenditure.

If you have not been spending ten dollars a year for business literature it is for the reason that you do not believe it will pay you as I say it will.

Perhaps you argue that you do take a number of trade papers and that they don't bring you any money. Either you do not read those papers or else you are mistaken. If you read any trade papers regularly, I don't care what it is or whether it is directly applicable to your individual business, it will bring you money, business, success—far more than ten dollars' worth.

A trade paper is not like medicine. The man who reasons that if a dose of medicine is good a whole bottle full will be better is going to poison himself. The man who reasons that if one trade paper is good more will be better is going to put rubber into his heels, enthusiasm into his brain and gimp into his backbone.—Frank Farrington.

—÷—

Full of Helpful Things

Dec. 22, 1913.

Lord & Nagle Co., Boston, Mass.

Gentlemen:—Enclosed herewith please find my check for renewal of my subscription to the Textile World Record, which I find a very interesting magazine, as it treats on many subjects.

I was recently made superintendent of the Sorosis Silk Co., where I was employed as foreman, and can say I found many helpful things in the Textile World Record.

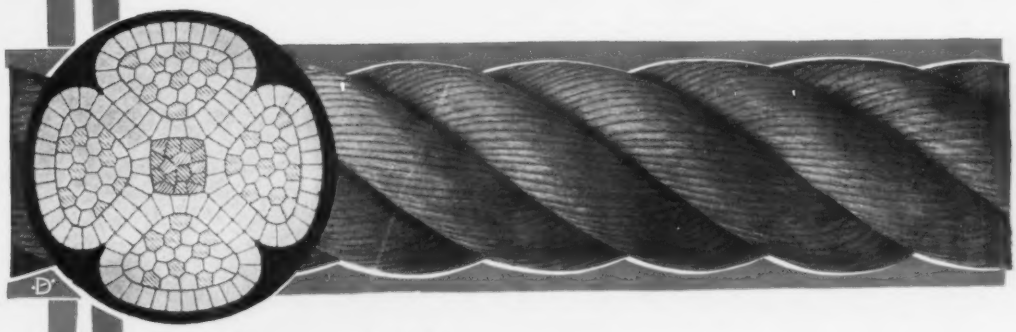
Wishing you a prosperous New Year, I am. Yours very truly,

Harry E. Katzenmoyer.
Allentown, Pa.

—÷—

Monthly Circulation Statement

Of this edition 6,350 copies are printed and all are needed.



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Is Built To Withstand Wear

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Because, transmission rope wears out first on the inside,—the severest strain it undergoes is internal, due to constant friction between the fibres and the yarns sliding upon each other. Unless protected, the core and yarns gradually are reduced to powder. Look at this cross section of

AMERICAN
TRANSMISSION ROPE

It shows how the inner yarns and core are laid with a special lubricant that permeates all the fibres and thus overcomes internal wear. It never leaves the rope, and as long as the yarns and strands remain together they are kept soft and pliable. Sufficient of this lubricant works to the surface, also, and gives ample protection against external injury.

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Let us send you our "Blue Book of Rope Transmission." It shows the superiority of AMERICAN TRANSMISSION ROPE in other essential features. It tells you how to splice a rope; how to get best results from a new one and many other helpful suggestions of this nature. All requests on business letterhead will bring it promptly.

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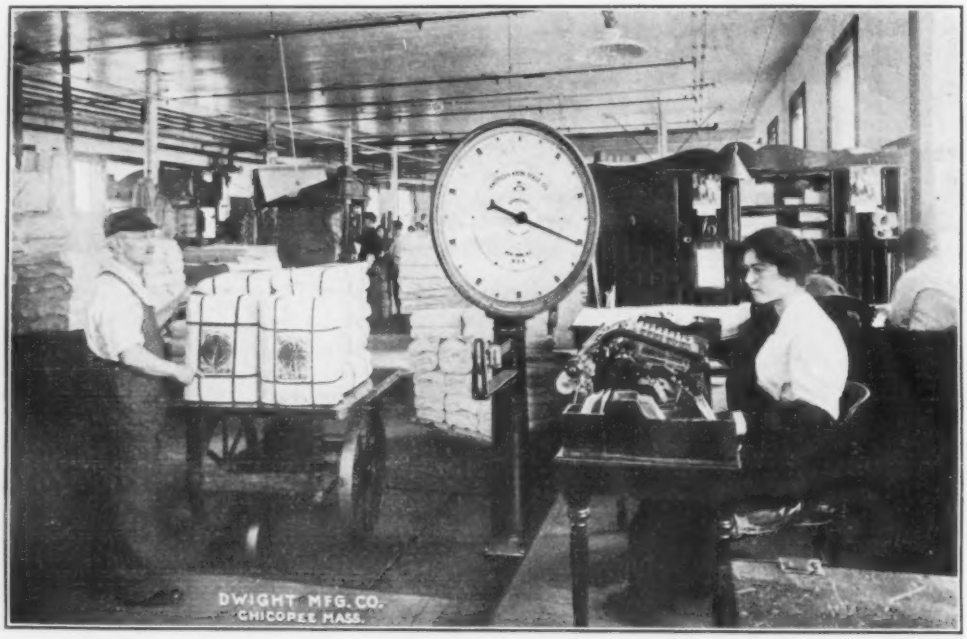

This illustrates how the **Dwight Manufacturing Company** of Chicopee, Mass., have increased efficiency in the handling and weighing of goods in their mill by the use of **The Kron Scale.** The Scale shown is a 1000-lb. Dormant Platform Scale, equipped with a Tare-Beam for automatic deduction of Tare-Weight.

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With the Kron in operation, all unnecessary work is eliminated and that means—**a saving of money.** The moment the load is placed on the platform the exact total weight is shown on the dial and there is no necessity to make any readjustment for the shipment to follow. You can accurately weigh a 15 lb. package or a 1000 lb. shipment, **one right after the other,** as rapidly as you can load and unload the scale.

Only One Operation—"Load and Look"

Compare this with the old beam scale—the fumbling with weights—the sliding of counterpoises—then the calculating of what the weight really is—not only time lost but many chances for inaccuracy, with the resulting disputes and claims that are bound to arise.

There are **No Springs—No Pivots—No Knife-Edges** in the dial mechanism of **THE KRON. There is no liquid dash-pot in THE KRON,** the pointer being automatically controlled by a compressed air device which takes up all vibration in the dial mechanism, making the pointer absolutely steady without taking away a particle of its sensitiveness. It is the most durable scale ever built, being entirely of metal and only the best and most carefully selected materials are used in its construction.

The Kron is made in types and capacities, dormant or portable, to suit every requirement where quick accurate weighing is essential. It has been adopted by the leading Express Companies, Railroads, Packing and Provision Houses and Industrial Concerns in every line of business.

Can you afford to be without The Kron Scale?

Write for Catalogue and learn what this scale will do for you. If there are any questions you would like to ask in connection with your weighing, just write us and we will gladly give you the benefit of our knowledge and experience

American Kron Scale Company

39 Cortlandt Street, New York

Western Representative: SPENCER OTIS COMPANY, Railway Exchange Bldg., Chicago, Ill.

NEW SELLING AGENT FOR HIGHLAND WORSTED MILL

Harold R. Shirley, 242 Chestnut St., Philadelphia, Pa., has been appointed selling agent for the Highland Worsted Mills of Camden, N. J. The high quality of their yarns is well known to the trade. These yarns were formerly sold by Richard Campion. Besides the Highland Worsted Mills account, Mr. Shirley is the selling agent for the French Worsted Co., Woonsocket, R. I.; James Irving & Son, Ltd., Chester, Pa., and the Falls Yarn Co., Woonsocket, R. I.

KNIT.

New Mills.

*Canada, Quebec, Three Rivers. The Cambridge Knitting Mills, Ltd., recently reported incorporated with capital stock of $50,000, will organize in a short time and elect officers and determine other details. They will manufacture men's, women's and children's underwear to be known as the "Cambridge Brand."

*New Jersey, Bridgeton. The mill being erected for E. Sutro & Son Company, hosiery manufacturers of Philadelphia, is nearing completion. It is expected that within the course of a few weeks the plant will be ready to operate. Contract for the electrical wiring and for a generator has been awarded. The mill is a 3-story brick and steel factory building, 80 by 36 feet. The small branch finishing plant operated in Bridgeton in the Commercial League Corp. Bldg. will be moved into the new mill and additional machinery for knitting and finishing will be installed.

New York, Brooklyn. Abraham Naibash has established a plant at 180 Bushwick Ave. for the manufacture of sweater coats under the name of the Acme Knitting Mills.

New York, Ilion. A new 150 h. p. boiler, a new pump and an automatic stock dryer have been installed in the Sterling Mills.

*North Carolina, Flat Rock. At the annual meeting of the Skyland Hosiery Company the stockholders approved the plans of the management to install 50 additional knitting machines and accompanying equipment. The old officers were reelected.

North Carolina, Morganton. W. C. Erwin, recently reported interested in organizing a new knitting mill company, and his associates have secured a charter for the Vandois Knitting Mills, Inc., with authorized capital stock of $125,000, to begin business with $10,000 paid in. A business of knitting, dyeing and finishing will be carried on. Associated with Mr. Erwin are Moore & Sigmon and A. M. Keisler.

Ohio, Cleveland. The capital stock of the Friedman-Blau-Farber Company has been increased from $300,000 to $500,000. Part of the proceeds from the new stock will be used in increasing the company's plants.

*North Carolina, Elizabeth City. Construction work will be started at once on the new mill to be built by the Elizabeth City Hosiery Company and it is expected manufacturing will be started about July 1. The new plant will be known as the Avalon Mill and will be a part of the Elizabeth City Hosiery Company. Misses' hosiery will be manufactured on equipment of 160 knitting machines operated by electric power. The officers of the Elizabeth City Hosiery Company are D. B. Bradford, president; P. H. Williams, secretary, treasurer and buyer; and G. F. Seyffert, superintendent. The new building will be 120 by 60 feet, and will be erected by J. W. Martin.

Pennsylvania, Adamstown. Stork Bros., formerly cigar manufacturers, have installed 60 knitters, 10 ribbers, and two sewing machines which they are operating on 144-needle half-hose, selling through New York.

*Pennsylvania, Allentown. A plant has been equipped at 113 S. 7th St. by the Patterson Knitting Company. Five knitting machines and 20 sewing machines have been installed and they are making children's waists. C. H. Patterson is proprietor and J. Fink Thompson is manager and buyer. This is the project in which J. Fink Thompson was reported interested several months ago.

*Pennsylvania, Carlisle. According to a local report construction work is to be started in a few weeks on the new mill to be established in Carlisle by the Interwoven Mills, Inc., of New Brunswick, N. J., and Martinsburg, W. Va. Plans were made some time ago for a building, 200 by 150 feet. It is expected that employment will be given to about 400 hands.

Pennsylvania, Cressona. Charles Beck, a shirt manufacturer, is installing six knitters and four sewing machines, which he will operate on a line of twenty-five cent union suits. Cressona is a short distance from Schuylkill Haven.

Pennsylvania, Cressona. J. F. Bast & Son, Inc., of Schuylkill Haven, have established a branch mill at Cressona for finishing only. Fifty knitting machines and 60 sewing machines are operated at Schuylkill Haven on women's silk ribbed vests.

Pennsylvania, Five Pointsville. A branch mill is being established here by the Adamstown Hosiery Mill, manufacturers of cotton half hose, and manufacturing will begin with 75 knitters, under the management of David Webber.

Pennsylvania, Intercourse. Manufacturing will be started April 1 in the branch plant being established here by the Ephrata Hosiery Mills Company of Ephrata, Pa. The initial equipment will be 40 knitting machines.

Pennsylvania, Reading. A 2-story brick building at 316-20 McKnight St. has been equipped with 21 knitters, 2 loopers and 2 sewing machines by the Weinerth Knitting & Machinery Company, Inc., and a line of ladies' 200-needle seamless silk hosiery will be manufactured. The concern has capital stock of $10,000. Frank Kitzmiller is president, C. Clarence Long, treasurer, and George S. Weinerth, secretary and manager. 60s to 80s single mercerized cotton and artificial silk yarns will be bought.

(Mill News continued on page 169)

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doing cotton dyeing, finishing and bleaching; or would consider position of Superintendent of Dyeing. Thoroughly experienced in all classes of cotton piece goods, plain and fancy sateens, ratine and crepe and silk and cotton, 15 years experience; A 1 reference as to character and ability; thoroughly understands latest methods as to cost and systematizing and with thorough executive ability. Address "A. B." care Textile World Record, Boston, Mass.

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Dyer, German, thoroughly experienced on cotton hosiery or skeins, all fancy colors, sulphur and develop black, and oxidize black, familiar with mercerizing process. Also understands all bleaching on cotton and half silk perfectly. 39 years old, sober and reliable in every respect. Good references. Moderate salary. Address "Hosiery and Skein Dyer," Textile World Record, Boston, Mass.

Manufacturing in Canada

The new Official Register of Canadian Boards of Trade gives complete descriptions of all Commercial Towns with Industrial Opportunities. Indispensable to firms who wish to establish an industry in Canada.

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Christian, ten years inside, ten years city salesman, desires to connect with a manufacturer or agency. He has $6,000 equity in Bronx improved property and probably could raise some capital for a meritorious proposition. "Salesman," Textile World Record, Boston, Mass.

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Position wanted by Bradford, England, ex-manufacturer of Plain and Fancy Worsted Coatings, Dress Goods and Coat Sleeve Linings. Thorough practical man, accustomed to all kinds of Drafting. High references. States or Canada. Advertiser can be seen in the United States. Address "Bradford," care of Textile World Record, Boston, Mass.

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In Brooklyn, a first class dyer who understands dyeing of fast colors, both fast to fulling and fast to boiling soap, cross dyeing and resist.

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We have a desirable location for a factory, ambition and a little money. We need a man with experience in the mechanical and buying end, and some knowledge of the trade, who has some money to invest with us to organize a small factory. Plenty of capital and labor to draw upon if "the goods" can be delivered. Will also consider removal of a factory, or establishment of a branch. Will consider any textile proposition, but hosiery preferred. Confidential if desired. References to be exchanged.

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Subscription Solicitor Wanted

The Textile World Record wants a first-class traveling subscription agent and reporter for the Southern States. Must have knowledge of cotton manufacturing and experience as a traveling man either in this line or some other. Salary and expenses guaranteed. Send full particulars with experience and references.

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Man who understands the manufacture of Juvenile, Misses'' Ladies', Boys' and Men's sweaters. Must be competent to take charge of department. Circular and flat machines used. References required. State salary expected and whether married or single. Good position to the right man. Address 'Sweaters,' Textile World Record, Boston, Mass.

Active Young Man Wanted

Energetic, ambitious, active young man, with good knowledge of the full fashioned silk hosiery business to assist in the factory management and selling. Good opportunity to the right party. Best references required. Address, "Manufacturer," Textile World Record, Boston, Mass.

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Advertiser wishes to identify himself with factory where technical training combined with ten years practical experience in executive positions, is of value. At present holds position as superintendent. Young man, clean record and good references. Salary secondary consideration if eventually there is opportunity to become interested in company. Address "Interested," care of Textile World Record, Boston, Mass.

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Manufacturers who are in need of Superintendents or Overseers for any department of mill work may learn of suitable men upon application by mail or telephone to C. T. DONLEVY, care Textile World Record, 144 Congress Street, Boston., who will give prompt attention to their requirements without charge.

Master Mechanic in medium sized mill or assistant in large; familiar with all makes of machinery; 30 years of age, married; good reference.
6136, Textile World Record, Boston, Mass.

Cost Clerk or assistant superintendent in cotton mill; 42 years of age, married; has had a wide experience in this line; good reference.
6137, Textile World Record, Boston, Mass.

Overseer of Spinning, Spooling, warping and twisting in cotton mill; has worked on knitting yarns and fine yarns from 8s to 120s, short and long stock; familiar with any make of spinning frames or winders, twisters, reels, slashers, warpers and D. & F. mules; 39 years of age, married; will only go to New York State; good reference.
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Overseer of Finishing in woolen mill; has worked on all kinds of woolens and worsteds; familiar with all kinds of machinery; 46 years of age, married; good reference.
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Boss Cutter, designer, or boss finisher in knitting mill; has worked on cotton and worsted knit goods, jerseys, bathing suits, athletic knit goods and sweater coats; familiar with the Eastman, Ballard and Metropolitan electric cutters; 26 years of age, married; will not go to N. Y., Pa., but prefers the West; good reference.
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Overseer of Knitting; has worked on worsted, wool and cotton, also plated and striped work; skirts, sweaters, toques, etc.; familiar with the Cooper flat ribbed machines, Scott & Williams, Wildman, Brinton, Nye & Tredick, Stafford & Holt, and Leighton machines; 35 years of age, married; good reference.
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Overseer of Carding in woolen mill; has worked on about all kinds of stock, all wool fine counts, cotton mixes, shoddy, all grades of goods, also carpets and worsted goods; familiar with all makes of cards, feeds and condensers; 50 years of age, married; will not go West, South or to Canada; good reference.
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Overseer of Knitting; has worked on stockinet goods, jersey cloths, astrachans, eiderdowns, athletic goods, rubber and glove linings, bathing suits, elastic jerseys, underwear and some experience on sweaters; familiar with Crane, Tompkins, Campbell & Clute, Gormley, Leighton and Stafford & Holt machines; 40 years of age, married; good reference.
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Overseer of Dyeing in woolen or worsted mill; has worked on men's cotton worsteds and ladies' worsted dress goods; cotton yarn, woolen and worsted yarns and slubbing, also wool, shoddy and noils; familiar with Klauder & Weldon, Rodney Hunt and Hussong dyeing machines; 34 years of age, married; will not go to Canada; good reference.
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Overseer of Dyeing or bleaching; has worked on raw stock, cotton and wool, long chain warps, short skein yarn, hosiery in fabric and yarns, bleaching quilts and toweling; familiar with Delehanty raw stock and hosiery dyeing machines, in fact most all kinds; 50 years of age, married; will go West and South; good reference.
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Overseer of Knitting; has worked on sweaters, ties, toques, underwear; cotton, silk and wool, both high class goods and cheap cotton goods; familiar with Scott & Williams, Wildman, Nye & Tredick, Stafford & Holt, Huse, Brinton and Fisher machines; 30 years of age, married; will not go to Mass., R. I., or South; good reference.
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Overseer of Dyeing and bleaching; has worked on silk and cotton hosiery; familiar with the National bleaching machines and Philadelphia dyeing machines; 43 years of age, married; good reference.
6126, Textile World Record, Boston, Mass.

Second Hand of dry finishing in woolen mill, or finished percher; has worked on plain and fancy worsteds, woolens, overcoatings and suitings; familiar with Parks & Woolson shears, Gessner presses and Curtis & Marble shears and brushes; 27 years of age; will not go West, South or to Canada; good reference.
6127, Textile World Record, Boston, Mass.

Overseer of Finishing in woolen mill; has worked on worsteds, fancy and piece dyes, and woolens; familiar with all kinds of worsted and woolen mill machinery; 29 years of age, married; will not go to Canada; good reference.
6128, Textile World Record, Boston, Mass.

Overseer of Dyeing; has worked on hosiery goods and skein on cotton and half silk, also understands mercerizing process; familiar with sulphur, develop and oxidized blacks; 39 years of age; also understands all bleaching on cotton and half silk; familiar with various dyeing machines; will not go to R. I., Vt., Pa., N. J., or South; good reference.
6129, Textile World Record, Boston, Mass.

Master Mechanic in cotton or woolen mill; has worked on most all kinds of machinery; 50 years of age; good reference.
6130, Textile World Record, Boston, Mass.

Overseer of Carding in woolen mill; has worked on most all kinds of woolen goods, cotton mixes, etc.; familiar with Davis & Furber machines mostly; 42 years of age, married; will go anywhere for a good position; good reference.
6131, Textile World Record, Boston, Mass.

Overseer of Dyeing in woolen mill; has worked on all kinds of woolens, worsteds, cotton mixed fabrics; cotton, woolen and worsted yarns and indigo dyeing; familiar with all kinds of dyeing machinery; 38 years of age, married; good reference.
6132, Textile World Record, Boston, Mass.

Chemical Engineer or anything in that line; would consider position of purchasing agent, chemist, etc.; is familiar with cotton lace goods, and in connection therewith has done considerable work on starches, gums, softeners, and the process of bleaching; graduate of Massachusetts Institute of Technology; also familiar with electrical and steam power machinery, winding and finishing machines; 25 years of age; married; will not go West, South or to Canada; good reference.
6133, Textile World Record, Boston, Mass.

Overseer of Dyeing or chemist in knitting mill; has worked on silk, wool and cotton hosiery, in fact any textile material; familiar with any kind of dyeing machinery; 32 years of age; good reference.
6134, Textile World Record, Boston, Mass.

Second Hand of mule spinning room in cotton mill; has worked on counts from 40s to 160s and fine goods; familiar with Hetherington and Asa Lees mules; 29 years of age; good reference.
6135, Textile World Record, Boston, Mass.

Overseer of Weaving in woolen mill; has worked on fancy woolens and worsteds; familiar with Crompton & Knowles looms; 27 years of age; will not go West or South; good reference.
6147, Textile World Record, Boston, Mass.

Overseer of Dyeing or finishing and dyeing; has worked on raw stock, cotton and wool rags, noils and shoddy, cotton, woolen and worsted yarns, broadcloths, unions, kerseys, serges, meltons, thibets, etc.; familiar with Klauder & Weldon dyeing and most finishing machinery; 33 years of age, married; will not go to Canada; good reference.
4416, Textile World Record, Boston, Mass.

Assistant Superintendent or assistant manager in woolen mill; would consider good office position; has worked on kerseys, overcoatings, ladies' cloakings, etc.; 24 years of age; good reference.
6125. Textile World Record, Boston, Mass.

Superintendent of an underwear or hosiery mill; would consider position of boss finisher or mill bookkeeper; has worked on men's, ladies' and children's two piece unions, sweaters, sleeping garments and hosiery in flat and ribbed from wool, worsted and cotton; familiar with all makes of carding, spinning and knitting machinery; 44 years of age; will not go to N. Y. or to Canada; good reference.
6123. Textile World Record, Boston, Mass.

Superintendent or manager of knitting mill; has worked on all kinds of underwear and some sweaters; familiar with all makes of knitting machinery; 44 years of age; good reference.
3844. Textile World Record, Boston, Mass.

Knowles Loom Fixer; has worked on woolens, worsteds, cotton worsteds, dress goods, suitings, cloakings, etc.; wife is an experienced sewer; 34 years of age, married; will not go West, South or to Canada; good reference.
5992. Textile World Record, Boston, Mass.

Overseer of Dyeing in woolen mill; has worked on face finished uniform cloth, indigo stock dyeing, fancy shades on wool, worsted and piece dyes, astrachans and unions; familiar with yarn machines, scouring, stock drying, and piece dyeing machines of standard makes; 32 years of age, married; good reference; will not go to Canada.
6000. Textile World Record, Boston, Mass.

Overseer of Dry Finishing or second hand in woolen mill; has worked on worsteds and woolens; familiar with all kinds of finishing machinery; 32 years of age, married; will not go to Me., N. H., Vt., Pa., N. J., West, South or to Canada; good reference.
6015. Textile World Record, Boston, Mass.

Manager or Superintendent of underwear mill; has worked on all kinds of goods; familiar with all kinds of machinery; understands the knitting business thoroughly in every stage; 45 years of age, married; will not go to Canada; good reference.
6017. Textile World Record, Boston, Mass.

Overseer of Weaving in cotton mill; has worked on cross and fine cottons; lenos, silk shirtings and worsted dress goods; familiar with most all makes of machinery, plain, fancy, also jacquards; 46 years of age, married; will not go West or South; good reference.
6018, Textile World Record, Boston, Mass.

Overseer of Ring Spinning in cotton mill, or general second hand of spinning in a large plant; has worked on all sizes of yarns made from Sea Island, Egyptian and Peruvian cotton; familiar with Fales & Jenks, Whitin, Saco, Pettee, Howard & Bullough and Mason machines; 38 years of age, married; good reference.
6022, Textile World Record, Boston, Mass.

Overseer of Dyeing in woolen mill; has worked on woolen and worsted suitings, half woolens, wool and shoddy mixes; prefers low grade stock; familiar with the Klauder-Weldon machines; 24 years of age; will not go to Mass., Conn., Me., N. H., Vt., N. J., or to Canada; good reference.
6007, Textile World Record, Boston, Mass.

Jacquard and dobby designer in cotton mill; has worked on all cotton fancies, jacquards a specialty, cloth analysis, fabric structure and manufacturing from yarn to cloth; has designed for quills, tapestries, linens, damasks, brocades, figured shirtings, and all fancy woven cloth; familiar with English makes of machinery; 30 years of age; good reference.
6045, Textile World Record, Boston, Mass.

Overseer of Ring Spinning, carding, combing, or superintendent of a cotton mill; has worked on carded and combed work, hosiery and warp yarns, single and ply yarns; yarns from 4s to 90s, colored work, blankets, flannels, yarns of all kinds of weaving; familiar with all makes of machinery, Whitin and Plat combers; 48 years of age, married; good reference.
6046, Textile World Record, Boston, Mass.

Bookkeeper and Cost Accountant Desires Position

Has thorough knowledge of Controlling Accounts, Trial Balances, financial statements and departmental cost Accounts. Furnish best references. Address "Office Accountant," Textile World Record, Boston, Mass.

DYEING OVERSEER WANTS POSITION.

Has had 25 years experience, dyeing Raw Stock, Cotton and Wool, Long Chain and Short Skein work. Hosiery in Fast Blacks and Colors, Bleaching all Fabrics in Cotton. Married. 50 years old. Willing to go anywhere. Address: "R. S. C." Textile World Record, Boston, Mass.

COST ACCOUNTANT WANTS POSITION

A Cost Accountant experienced in Woolen Mill practice is open for an engagement. If desirable, can do the book-keeping too. Address: Cost Accountant, c. o. Textile World Record, Boston, Mass.

Overseer of Finishing Wanted

Overseer of Finishing and Knitting Mill, one who can take complete charge from cutting to boxing of Men's, Ladies' and Boys' Union Suits. The mill is situated in central Illinois. One who is thoroughly competent of taking full charge of entire department. Must understand Union Special and Singer Sewing Machines. Address "Overseer of Finishing," Textile World Record, Boston, Mass.

Position as Designer or Asst. Superintendent Wanted

By young man 24 years of age, as Designer or Asst. Superintendent in woolen and worsted mill, woolen mill preferred. Has worked on great variety of lines, such as woolen-worsted mens wear and ladies dress goods, beavers, meltons, chinchillas, plaid-backs, army-navy cloths, piece-dye serges and resist dyes, mackinaws, cashmerettes, etc. Familiar with most textile machinery. Understands costs and most all textile calculations. Excellent references as to character and ability. Best of reasons for leaving last place. Will go anywhere. New England States preferred. Address "D & S," Textile World Record, Boston, Mass.

Assistant Designer and assistant superintendent or designer in small woolen mill; has worked on fancy worsteds and woolen men's wear; 24 years of age, married; will not go West, South or to Canada; good reference.
6019, Textile World Record, Boston, Mass.

Superintendent of Worsted Yarn Mill, or would accept position as overseer of drawing, spinning or twisting; has worked on all qualities of yarn from low common to fine Australian wools; familiar with Lowell Machine Shop, Prince, Smith & Son and Hall & Stell makes of machinery; 27 years of age; good reference.
6020, Textile World Record, Boston, Mass.

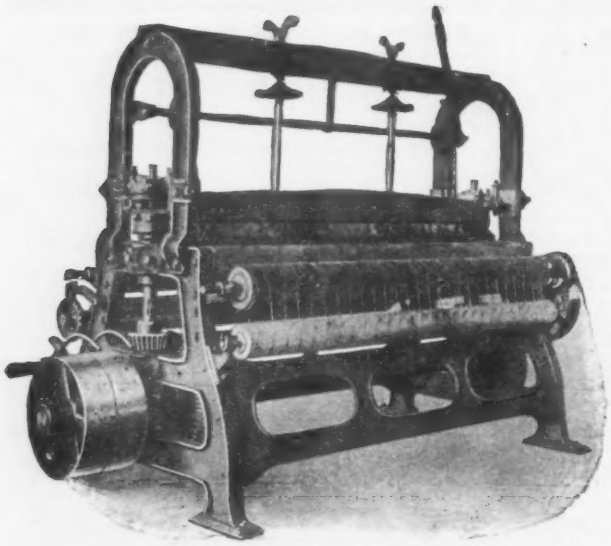
Designer in Woolen Mill or assistant superintendent in small mill; has worked on fancy woolens and worsteds, overcoatings, kerseys, flannels, dress goods, thibets, cotton carded goods, etc.; familiar with mules, cards, pickers, looms, and woolen finishing machinery; 26 years of age; will not go West or South; good reference.
6021, Textile World Record, Boston, Mass.

Overseer of Carding in woolen mill; would also consider position as superintendent of small mill; has worked on all kinds of goods; familiar with all makes of cards; 44 years of age, married; will not go to Pa., N. Y., N. J., West, South or to Canada; good reference.
6047, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning or would consider position as second hand; has worked on wool shoddy, silk and cotton mixes, and all kinds of stock from one-half to nine run; familiar with Davis & Furber and Johnson & Bassett mules; 39 years of age; will not go South; good reference.
6048, Textile World Record, Boston, Mass.

Overseer of Cotton Dyeing on the roll; has worked on all kinds of cotton cloth on the roll and knit goods; familiar with the Klauder-Weldon and Utica Novelty dyeing machines; will not go to R. I., Conn., Me., N. H., Vt., N. J., or South; 39 years of age, married; good reference.
6049, Textile World Record, Boston, Mass.

CHINCHILLA MACHINE



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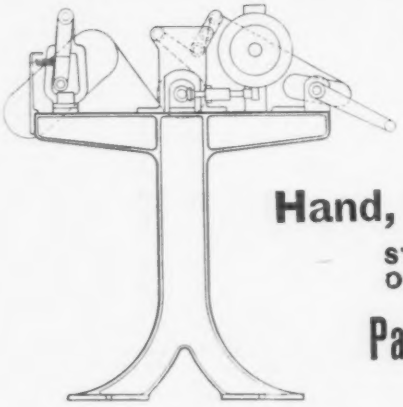

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Parks & Woolson Machine Co
SPRINGFIELD VERMONT

(Continued from page 161)

*South Carolina, Old Fort. Construction work is progressing on the building being erected for the Century Knitting Mills, formerly at South Boston, Va. The new mill will be 60 by 164 feet, and will be equipped with automatic sprinklers. It is expected machinery will be installed early in March.

Tennessee, Charleston. Business men of Charleston and Calhoun have subscribed $25,000 for the establishment of a knitting plant here to be known as the Charleston Hosiery Mills. A company will be organized with capital stock of $50,000. W. J. Eldredge will be president; T. B. Saulpaw, vice-president; J. E. Quisenberry, secretary and treasurer. The mill will be a one-story and basement brick structure and it is expected will be in operation about August 1. Electric power will be used.

*Tennessee, Knoxville. Jacob Spiro is establishing a small hosiery knitting mill and is looking for an experienced man to take charge of the plant.

*Tennessee, Rogersville. The Rogersville Knitting Company has been incorporated with capital stock of $50,000 by H. G. Kyle and W. D. Harmon. It is planned to construct a brick building, probably 100 by 60 feet, and to install machinery which will include about 50 knitting machines. Electric power will be used

*Wisconsin, Milwaukee. The Hercules Knitting Company, reported incorporated with capital stock of $25,000, has established a plant at 1097 Greenbush St. for making sweaters, jackets, shawls and fancy knit goods in the better grades. The equipment includes 4 knitting machines, 4 sewing machines, 2 loopers, electric motors, etc. The product will be sold direct. Hubert Kroetz is president, and Hugo J. Kroetz is treasurer.

.....

Enlargements and Improvements.

Alabama, Anniston. The Anniston Knitting Mills Company has purchased a site for an addition. It contemplates putting up a 2-story building which will give 20,000 square feet of floor space. Plans for the enlargement will be taken up at the annual meeting of the stockholders in February. Children's cotton ribbed hosiery is manufactured on 85 latch needle knitting machines.

*Canada, Ontario, Toronto. The Olympic Mfg. Company, whose organization was recently noted, operates a small knitting mill at 64 Colborne St. making sweaters, sweater coats and children's knitted specialties on seven knitting machines and three sewing machines. Three more knitting machines will soon be installed. A. D. Campbell is manager and John Hogg, superintendent and buyer. Electric power is used.

*Georgia, Rome. Construction work has been completed on the 2-story addition, 120 by 64 feet, to the plant of the Rome Hosiery Mills, and additional equipment will be installed including 100 knitting machines, with complementary machinery, and dyeing and finishing machinery.

*Illinois, Rockford. Following the recent increase in the capital stock of the Forest City Knitting Company from $60,000 to $120,000 the plant will be greatly enlarged. It is planned to add about 100 new knitting machines. Men's seamless cotton hosiery is manufactured. William Nelson is president, and F. F. Nelson, treasurer and buyer.

Louisiana, New Orleans. An increase has been made in the capital stock of the Alden Mills from $200,000 to $500,000.

Massachusetts, Taunton. The Lockstitch Hosiery Company is now located in larger quarters on Court St. and is operating 20 knitting machines on seamless half hose from combed Sea Island yarns and artificial silk yarns. C. H. Lawrence is agent and buyer, and S. C. Malloy, superintendent.

Minnesota, Minneapolis. F. H. Suffel has retired as president and treasurer of the Northland Knitting Company, 1301-31 Central Ave., N. E. C. L. Merrick will be president and R. S. Northway, vice-president. It is reported that additional capital is to be invested in the concern and the output doubled. Sweaters, shawls, fancy knit goods and infants' goods are manufactured.

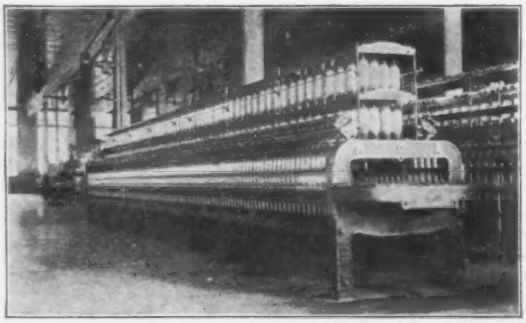
*Missouri, Kansas City. A new charter has been granted the Goodenow-Brookfield Knitting Company, increasing the capital stock of the concern from $35,000 to $100,000. This company is one of the rapidly growing manufacturers of men's underwear, making closed crotch athletic union suits for men under the K. K. Cooper patents, and also knitted sweater coats. The factory at Broadway and 42nd St. has recently been doubled in capacity, and offices are maintained at 346 Broadway, N. Y.; Consumers' Bldg., Chicago; 786 Mission St., San Francisco. The officers remain the same. J. Frank Goodenow is president, and Arthur D Brookfield, secretary and treasurer.

New York, Broadalbin. An increase in the capital stock of the Broadalbin Knitting Co., Ltd., is contemplated, from $150,000 to $200.000. During the past year about $50,000 has been expended in the building of a 3-story addition and constructing a branch railroad from the main line of the Fonda, Johnstown & Gloversville R. R., and the production is being increased about 50 per cent. The addition to the plant is practically completed, the interior work being finished and an elevator installed. Among the additions to the equipment are 3 sets of cards, 900 woolen spindles and 15 knitting machines. Underwear, jersey cloth and fleece linings are manufactured.

New York, Brooklyn. The Fam Knitting Mills, 902 Park Ave., are building an enlargement and will install ten new knitting machines. Sweaters, jerseys, bathing suits and infants' knit wear are manufactured.

New York, Brooklyn. New quarters at 743 De Kalb Ave. have been secured by the Milton Mfg. Company whose plant at 435 Broadway was burned out last October. They are making infants' knitted bootees on six knitting machines and four sewing machines, operated by electric power, and selling the product direct. Robert Abramson is superintendent and buyer.

THE BROWN SPIN-WRIGHT



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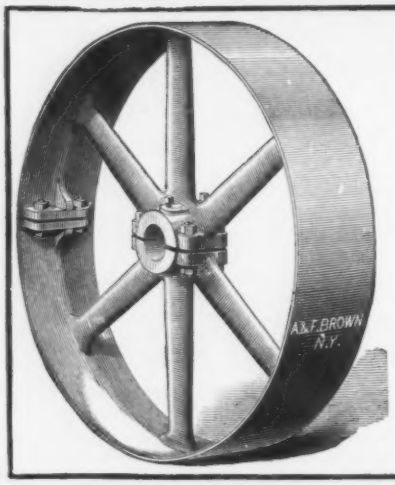

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MILL NEWS.

New York, Cohoes. The Roff Underwear Company have purchased the Empire Mill formerly operated by the John A. Nuttall Company, and have moved their machinery, formerly at Green Island, Troy, to this mill. Fred Roff is now the buyer.

*New York, Cohoes. The B. & L. Textile Company, manufacturers of men's ribbed underwear and union suits, have leased the basement, first and fifth floors of the Victor Mill, No. 1, on Ontario St., and will move into the new quarters in a few days. The lease is for a term of ten years. The Capital Knitting Company, whose plant was destroyed in the fire of last December, are occupying the second and third floors. It was noted several weeks ago that the B. & L. Textile Company required larger quarters to provide for an increase in equipment. They expect to install new machines and to double their production.

*North Carolina, Connellys Springs. In about sixty days the new Connellys Springs Knitting Mills Company will begin the construction of a hydro-electric plant on the South Fork River, about four miles from its plant. It is expected to develop about 200 h. p. which will be transmitted to Connellys Springs. As noted in previous reports the Connellys Springs Knitting Mills Company is headed by D. B. Mull, formerly of Drexel.

*North Carolina, Durham. The North State Knitting Mills, Inc., a new concern organized recently which took over the small knitting plant on Allston Ave. established a few months ago by W. J. Berry, now has 60 knitting machines and 10 loopers, operating by electric power on ladies' ribbed top hose, 176-needle goods. J. S. Carr, Jr., is president; C. M. Carr, treasurer; and W. J. Berry, manager and buyer.

North Carolina, Durham. Three hundred thousand dollars of the preferred stock of the Durham Hosiery Mills, Inc., is being offered for public sale, the proceeds to be used in building a new hosiery mill and making extensions and improvements in the company's various plants. It is reported a new building will be erected for the branch mill now operating at Mebane.

North Carolina, Flat Rock. The Skyland Hosiery Company will add 50 knitting machines to increase its production of men's and women's hosiery. New finishing machinery also will be installed.

North Carolina, Kernersville. Changes and improvements are to be made by the American Hosiery Mills Company, manufacturers of seamless hosiery. A specialty is made of 84-needle hose and half hose. O. W. Kerner is president and John G. Kerner, secretary and treasurer. George O. Johnston is superintendent.

North Carolina, Newton. The Catawba Woolen Mills, manufacturers of wool hosiery yarns and carpet yarns, expect to install hosiery knitting machinery. T. H. Phillips is president and treasurer and W. H. Phillips is general manager.

Ohio, Cleveland. The Fashion Knitting Company, manufacturers of sweater coats and fancy knit goods at 1265 W. 2nd St., are looking for larger quarters.

Pennsylvania, Allentown. The Rexall Knitting Company recently took over and consolidated with its business the plant and business of the Astrakhan Company, a small concern which started up here several months ago. The Rexall Company, in addition to manufacturing silk neckties and winding silk for the trade, is also making a line of astrakhan cloths and other knitted fabrics.

Pennsylvania, Allentown. A change has been made in the name of the Allentown Eiderdown Company to the Allentown Knitted Fabric Company. The plant is located at 641 Jordan St., where eiderdowns, fleece linings, astrachans, etc., are manufactured, dyed and finished.

Pennsylvania, Adamstown. Extensive improvements are being made in the main plant of the Adamstown Hosiery Mill. A branch plant is being established at Five Pointsville.

Pennsylvania, Bethlehem. New knitting machines are to be installed in the plant of Samuel Graham, a manufacturer of knitted ties at 516 Linden St. It is probable that some other changes also will be made with a view to increasing the output. At present six knitters are operated.

Pennsylvania, Lehighton. During the spring the Carbon Knitting Company will probably erect a new 2-story building doubling the size of the plant. Women's underwear is manufactured.

Pennsylvania, Lehighton. The Lehighton Knitting Company, Zimmerman & Altemus, proprietors, contemplate building an addition, 20 by 40 feet, of frame construction. Women's underwear is manufactured.

Pennsylvania, Nazareth. Increases have been made in the equipment of the Kraemer Hosiery Company and they are now operating 59 fashion frames, 165 latch needle knitters, 70 loopers, and 35 sewing machines. They are busy on full fashioned hosiery, silk and cotton goods.

Pennsylvania, Philadelphia. Local builders are said to be estimating on plans prepared for John Blood & Bro., Inc., manufacturers of ladies' ribbed underwear at Trenton and Allegheny Aves., for a new dye house, one story, 40 by 135 feet, to be located at Clearfield and Witte Sts., a short distance from the present plant.

Pennsylvania, Pottstown. The Vaughan Knitting Co., Andrew E. Vaughan, president and manager, manufacturers of men's seamless hosiery, silk and mercerized, are very busy. They are at the present time arranging for the increasing of their equipment to 340 knitters and auxiliary machinery with a view of enlarging their production for 1914.

Pennsylvania, Pottsville. The Reber Mfg. Company, 14th and Market Sts., manufacturers of seamless hosiery, have recently opened an annex on Centre St. in which they have installed 30 knitting machines and 6 loopers. H. J. Walters is superintendent.

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KISSELKAR TRUCKS

MILL NEWS

Pennsylvania, Pottsville. The Glen Knitting Company, 10th and Market Sts., owned and operated by Petry, Horn & Elliot, have increased their equipment to 26 knitting machines and 29 sewing machines. This company manufactures women's cotton ribbed underwear, selling the product through New York.

Pennsylvania, Reading. A rearrangement of equipment is being made by the H. V. Wentzel Knitting Mills and in the future the concern will specialize on men's, women's and children's union suits from cotton, lisle, mercerized and worsted yarns.

Pennsylvania, Reading. An increase has been made in the equipment of the Glasser Hosiery Company, Pearl and Kerper Sts., to 120 knitters, 30 ribbers, and 40 loopers. They make seamless cotton, silk, lisle and silk plated hosiery for men.

Pennsylvania, Reading. Light Bros. Hosiery Company, manufacturers of seamless cotton and silk hosiery, have removed from Front and Court Sts. to larger quarters at 701 Walnut St., where they occupy the first floor.

Pennsylvania, Reading. Deeds & Staudt, 1130 Moss St., have increased their equipment to 110 knitters, 23 ribbers, and 16 loopers, which they are operating on seamless cotton hosiery and silk half hose. They are very busy.

Pennsylvania, South Bethlehem. Arrangements are being made for the removal of the Hall Hosiery Company to the new building at 947 Broadway. They will install in the new plant 175 knitters and 51 ribbers and will use electric power throughout. Men's, women's and children's hosiery in silk, art silk, and cotton are manufactured. The Hall Hosiery Company took over the South Bethlehem plant of the Chipman Knitting Mills. M. C. Hall, a relative of the Chipman's, is manager and buyer.

Pennsylvania, Spring City. The Spring City Knitting Mills, operating 40 knitters and 37 sewing machines on women's ribbed underwear, are arranging for the erection of a new building as an addition to their present plant, which will be 45 by 67 feet, three stories and basement, of brick, in which they will install an additional equipment of 20 knitters and 15 sewing machines.

Vermont, Northfield. A new dyeing machine has been installed in the plant of the Vermont Hosiery & Machinery Company.

*Virginia, Portsmouth. Adjustment has been made with the insurance companies by the Parker Hosiery Mill & Dye Works and the damage caused by the recent fire in the boiler room is being repaired. Only two hours were lost from the regular schedule.

*Wisconsin, Milwaukee. The capital stock of the Van Dyke Knitting Company has been increased from $100,000 to $150,000. An addition is being built which will double the capacity of the plant.

MILL NEWS

Mills Starting Up.

*Louisiana, New Orleans. The new sweater knitting plant recently established at Chartres and Bienville Sts. under the name of the O. K. Knitting Mills has begun manufacturing. An office has been opened in the Godchaux Bldg. by Orsher & Kronengold, the owners of the new business.

New York, Athens. J. R. McLaren, of the Swansdown Knitting Company, Hudson, and associates have taken over the Athens Knitting Mill and on the completion of extensive changes and improvements the mill will be started up about April 1.

*New York, Clifton Springs. The Clifton Springs Knitting Company, a small concern which began manufacturing here a few months ago, has dissolved and gone out of business.

Ohio, Bowling Green. The sale of the plant of the Monarch Underwear Company to Fred W. Uhlman has been confirmed. As noted in a previous report the new owner intends to operate the plant as soon as possible.

*Pennsylvania, Allentown. Osenbach & Kramer, the new hosiery manufacturing concern which has been establishing a plant at Rittersville, have begun operations. Mr. Osenbach was formerly of the firm of Hildebrandt & Osenbach, manufacturers of seamless cotton half hose at Rittersville. This business is being conducted by Herman Osenbach under the name of the Hildebrandt Hosiery Mill.

Pennsylvania. Reading. Benjamin L. Heacock has started up the Oakbrook Knitting Mills, at Oakbrook, operating 6 knitters and 6 sewing machines on ribbed vests and union suits, selling the product direct. Considerable improvements and extensions will be made at the plant during the coming spring.

Tennessee, Dayton. The new Dayton Hosiery Mills began manufacturing January 1 and are turning out men's and women's hosiery, 176-needle goods, in black and tan. A brick mill building, 2 stories and basement, has been built and equipped with 100 knitting machines and 4 sewing machines, also a separate dye house building. Electric power is used. The capital stock of the company is $60,000. A. P. Haggard is president, G. F. Morgan, treasurer, and A. B. Andrews, manager and buyer.

*Tennessee, Morristown. Manufacturing has been begun in the new branch plant of the Holston Mfg. Company, Lenoir City, the product being shipped to the main plant to be dyed and finished. The local plant is a new brick mill equipped with 47 knitting machines operated by electric power. The capacity of the building is 100 knitters. A. J. Scarborough is in charge as superintendent.

Pennsylvania, Topton. Ten new box looms are being installed in the local plant of the Hartley Silk Mfg. Company. The main office is at Towanda.

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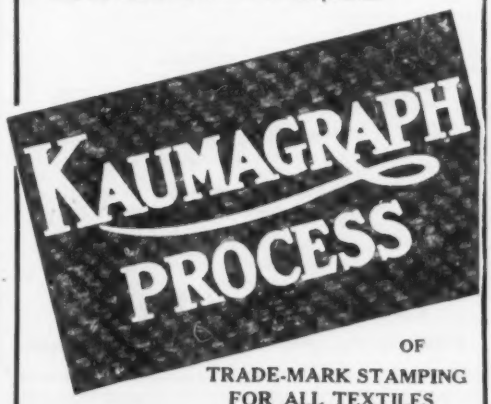

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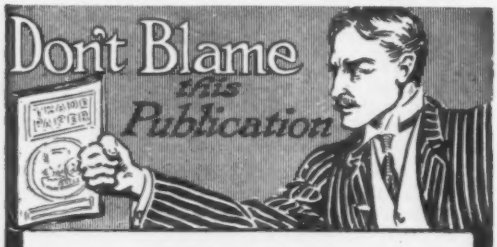

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MILL NEWS

*Wisconsin, Milwaukee. Good progress is being made on the new mill for the Van Dyke Knitting Company and it will be completed and equipped about June. The building is of concrete and brick construction, 105 by 150 feet, 4 stories high, and will cost about $70,000. It will be equipped with automatic sprinklers, electric power and light, and all modern appliances. Herman Esser, the architect, is in charge of construction.

*Wisconsin, Superior. The Superior Knitting Mills Company, a reorganization of the Superior Knitting Mills, is manufacturing knit goods, including sweater coats and caps, on 30 knitting machines and 25 sewing machines, operated by electric power. The new company has capital stock of $20,000. W. A. Whitney is president and sole owner of all the stock at present. Morris Weinstock is superintendent.

*Pennsylvana, Marcus Hook. A local builder has been awarded the contract for a new one-story brick and frame building, 132 by 200 feet, to be erected for the American Viscose Company. The building, it is said, will be used for spinning purposes. They manufacture artificial silk.

Pennsylvania, Nazareth. Additional looms, which will bring the equipment up to 103 looms, are to be installed in the local branch of McCollom & Post, of Paterson, N. J. A. Ch. Bramer is manager.

Pennsylvania, Philadelphia. The Independence Ribbon Mills, Third and Ontario Sts., are adding some new machinery. Most of the present equipment has been brought from the Myhnepo Mills at College Point, N. Y.

Pennsylvania, Reading. The Quaker Silk Mills, 216 Buttonwood St., where they occupy two floors, are arranging to take over the entire building after April 1. They plan to install 60 to 70 additional looms. 118 looms are operated on fancy jacquard broad silks for the necktie trade, in both natural and artificial silk. The plant is owned by B. Edmund David, and the product is sold through the main office of the concern at 440 4th Ave., N. Y. Richard Starke is superintendent.

Pennsylvania, Ridgeway. Ten new looms have arrived at the Ridgeway Silk Mill, recently taken over by the Holmes Silk Company, of Williamsport, Pa., and Paterson, N. J., and are now being erected in the plant. A further installation of twenty looms is to be made.

*Pennsylvania, Scranton. The damage caused by the recent fire in the shipping room of the Black Diamond Silk Company has been repaired and the mill is running as usual.

Rhode Island, Central Falls. An addition is to be built to the plant of the Leader Weaving Company, and the construction work will be done by Benjamin F. Smith Company. The dimensions of the new building have not been fully decided upon, but it will be two stories high and will have sufficient space for 50 additional looms. Silk and cotton fabrics are manufactured.

MILL NEWS.

Pennsylvania, Stroudsburg. The Monroe Silk Mills, manufacturers of ribbons, are interested in installing a filtering plant for their dye house and would like information on installations of this nature. Frank W. Kimmerle is manager.

Rhode Island, Pawtucket. No. 1 Mill of the Slater Mfg. Company, located on Main St., is to be changed over into a silk mill. About 500 silk looms will be installed to take the place of the present cotton looms which will be transferred to No. 2 mill and set up in space now used for spinning. It is understood the lines of silk goods to be woven by the Slater Mfg. Company are similar to the lines made by the Hamlet Textile Company at Woonsocket.

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Mills Starting Up.

*Massachusetts, Fall River. Manufacturing will be started on March 9 by the new Fawcett Silk Company, the new concern which has taken over the Eagle Silk Mills, 189 Stafford Road. Lines of broad silks, including messalines, peau de chene, taffetas, and dress silks, will be manufactured on 24 looms, the product being sold by Buetzer & Flower, N. Y. Gas power will be used. The new company has organized with James Ashworth, president; J. Alfred Dumoulin, vice-president, secretary and buyer; and Albert E. Fawcett, treasurer and manager. It is planned to build a new mill in about a year to accommodate 100 looms if this increase is warranted by the business.

*New Jersey, Oxford. The Oxford Silk Throwing Company has begun throwing silk on commission in the plant recently discontinued by the Haledon Throwing Company and has equipment of 5,000 spindles operated by steam power. The new company has capital stock of $12,000. Henry L. Mountain is president; Milton M. Burd, treasurer, and John C. Houck, secretary, manager and buyer.

Pennsylvania, Hanover. The new silk ribbon mill built for E. & H. Levy, N. Y., has begun operations.

*Pennsylvania, Warren. The plant of the new Warren Silk Mfg. Company is now in running order and operatives are being instructed in the work. About twenty-five hands are employed at present and as fast as operatives can be trained they will be put to work until it is expected that about 100 hands will be employed. The first floor of the new mill has been equipped for office purposes. The winding is done on the second floor and on the third floor the weaving of the silk fabric and the cutting up into hosiery and underwear is done. The company has purchased property adjoining the present plant anticipating the need of extensions in a short time. The Warren Silk Mfg. Company has capital stock of $60,000. Jacob Thissen is president, manager and buyer, and P. W. Durkin is treasurer.

*Pennsylvania, Watsontown. The new Watsontown Throwing Company has begun operations and will run on a night and day schedule. The product will be taken by F. Q. Hartman, Inc., of Danville.

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Mills Shutting Down.

Massachusetts, Lowell. The Morton Mills, a concern manufacturing silk ribbons, which came here from Paterson, N. J., a year or two ago, is liquidating. Richard Godfrey, the superintendent, states that the liquidation is voluntary and is not due to any financial embarrassment but on account of the unsuitability of Lowell for the manufacture of silk fabrics. The company occupied a building owned by the Hamilton Mfg. Company on Jackson St.

MISCELLANEOUS.

Massachusetts, Lowell. The Lowell Bleachery has decided to build a new boiler house and install boilers with a capacity of 1,000 h. p. The old power plant will be retained for possible emergencies. John A. Stevens will be the engineer in charge.

*New Hampshire, Keene. Good progress is being made by the new Keene Artistic Narrow Web Company in setting up looms and other machinery in its new mill on Congress St. At present warps are being made and drawn through harnesses ready for the looms. Some of the looms will be ready next week. There are 30 jacquard looms and 9 dobby looms in the mill which are now being set up. This is a branch of the N. H. Artistic Web Company of Barnstead, N. H., and the class of goods manufactured at Barnstead will be made here.

New Hampshire, Suncook. A number of new looms were recently received by the Suncook Artistic Webbing Company, and will greatly increase the output of the factory. In November an increase in the capital stock was noted and it was reported that the plant would be enlarged. Narrow silks, insertions, wash trimmings and edgings are manufactured. Emil Zinn is manager and buyer.

Connecticut, East Killingly. A new boiler is being set up in the plant of the International Cotton Mfg. Company. During the present month the work of installing a new water wheel is to be started. The plant is now running night and day on absorbent cotton and similar products.

New Hampshire, Peterborough. A concern has been established here under the name of the Art Weaving Company to manufacture a fine line of high grade trimmings and other narrow fabrics. Six two and three-shuttle looms with jacquards have been purchased and are expected shortly. Sea Island and Egyptian yarns from 2/20s to 2/100s will be purchased as well as art silk from 150 denier up. China and Japan trams will also be used. Emil von Hagen will be buyer.

New Jersey, Little Falls. The silk dyeing plant, until recently occupied by the Kearns & Carroll Silk Dyeing Company, is being equipped as a modern plant and operations will begin in the near future. Henry Hahn owns the property.

*New Jersey, Paterson. A silk finishing plant is being established in the Todd Mill on Van Houten St. by the Textile Finishing Company, a new concern reported incorporated in January with capital stock of $25,000. Machinery for finishing, embossing, and moireing ribbons, beltings, elastic fabrics, etc., is being installed and will be driven by electric motors. Henry B. Crosby is president; Andre J. Pinatel, vice-president; and Charles Barmore, Jr., treasurer, manager and buyer.

*New Jersey, Somerville. Bids are being received for the construction work on the additional mill to be built for the Redfern Lace Works. The building will be 1 story high, 100 by 200 feet, of brick and concrete construction. This concern manufactures fine silk and cotton laces on present equipment of 14 lace machines, operated by electric power. Albert Redfern is president; L. E. Carmen, vice-president; Irving S. Hance, secretary and treasurer; Clarence E. Chapman, chairman of board of directors. The New York office is at 102-104 Fifth Ave.

New York, Long Island City. A number of plush looms are being added to the equipment of the Cornellist Textile Company, 257 Hancock St., filling up the present space. A further increase is contemplated and the management hopes to secure more space in the same building. The plant was established several months ago on an experimental basis and apparently has proved successful. W. P. Cornell is proprietor and Thomas Nellist is superintendent.

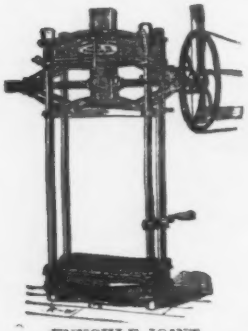
Pennsylvania, Allentown. In the fall a new building is to be erected by Pickup & Kean, Inc., to join their main plant on Sumner Ave., and both plants will be consolidated at one location. They are mercerizers and dyers of cotton skein yarns and have a winding plant at 613 Court St.

*Pennsylvania, Allentown. The Jordan Silk Dyeing Company, recently incorporated with capital stock of $15,000, has located in the new building on Sumner Ave. and is dyeing skein silk with a capacity which at present is 500 pounds per day. William A. Gehringer is president and buyer, and Edward F. Gehringer, treasurer.

Pennsylvania, Chester. Report has it that the Abcecco Mills, in which John P. Stewart is interested, will equip a plant in the Arasapha Mills for the manufacture of ramie yarns.

Pennsylvania, Philadelphia. Thirty narrow looms have been installed by H. K. Wilson at Mascher and Turner Sts., in the Irwin Mills, on which he is manufacturing linen and cotton towels, dress goods, etc., under the name of the Girard Mills.

Pennsylvania, Philadelphia. In order to increase his facilities and to take care of his growing business, Fred H. Walker, proprietor of the American Textile Works and the American Print Works, has leased the top floor of the buildings at 821 Cherry St. and installed a number of new machines. This new equipment in addition to the old equipment is being run to full capacity. The American Textile Works manufactures imitation pelts and textile fur effects. The American Print Works prints fur fabrics, cloakings and dress goods for the trade.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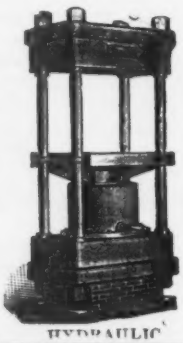
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MILL NEWS.

Pennsylvania, Philadelphia. The Ford Silk Hosiery Dyeing Co. has equipped the one story brick building at 2111 E. Westmoreland St. with new machinery for dyeing silk and cotton and silk mixed hosiery with a capacity of 2,000 pounds per day. W. E. Fisher, Jr., is the superintendent and buyer.

Pennsylvania, Philadelphia. Firth & Foster Company have acquired the property at 1925-29 E. York St., adjoining their plant. The property occupies a lot 54 by 57 feet. Firth & Foster are dyers and finishers of piece goods, silk wool and worsted.

Pennsylvania, Philadelphia. It is reported that the Hulton Dyeing & Finishing Company, dyers of raw stock and woolen and worsted yarns and piece goods, have recently purchased the one-story building adjoining the Industrial Dye Works on Frankford Ave., and will equip it for dyeing yarn, operating it as a branch of the main plant on Jasper St., below Somerset.

Pennsylvania, Philadelphia. T. A. Harris Company, Hancock and Thompson Sts., dyers and bleachers of cotton, woolen and worsted knit goods and hosiery, have awarded the contract for the erection of a new boiler house.

Pennsylvania, Reading. The Reichart Dyeing & Bleaching Company has been reorganized with the following officers: Charles Reichart, president; Edward Snyder, treasurer, and Charles T. Quintor, formerly with Samuel Rowland, Schuylkill Haven, manager. New machinery has been added and their bleaching capacity increased to 4,000 pounds daily. The plant is at present running in full. They dye and bleach hosiery, underwear, toweling and knit goods under a new process, making a soft and lustrous bleach.

Pennsylvania, Reading. Diener Bros. & Hottenstein, proprietors of the Spring City (Pa.) Bleach Works, have taken over the plant of the Reading Bleach Works on Bingaman St., and are operating it, making a specialty of bleaching cotton knit goods with capacity of 8,000 pounds daily. The buying is done at Spring City.

*Rhode Island, Ashaway. The Bethel Mill, owned by the Ashaway Woolen Company, will be occupied by the Ashaway Lace Company, recently reported incorporated with capital stock of $100,000. L. A. Briggs, treasurer of the Ashaway Woolen Company, is one of the incorporators of the new concern. Samuel H. Griffiths, another of the incorporators, is an experienced manufacturer of the lines of goods to be made by the new concern.

*Rhode Island, Pawtucket. Construction work has been started on buildings for the La Tulia Lace Company, incorporated in January with capital stock of $200,000 by Louis Lescault, formerly connected with the Seekonk Lace Company of this city, and associates. The location of the plant is on Tweed St., where a tract containing 50,000 square feet has been purchased. It is understood that two buildings will be put up, 230 feet long by 54 feet wide, and these structures will be connected by an office building. There is also to be built a boiler and engine room and a bleach house. The buildings will be all 1-story high, of cement construction. Mr. Lescault and his associates purchased the lace machinery of the De Luxe Textile Company, Davenport, Ia., and it was reported would remove it to Pawtucket and start a lace plant, adding some new machinery.

*Rhode Island, Pawtucket. The plant of the Prospect Finishing Company, Beveridge Hill Ave., has been purchased by the McKenzie-McKay Company, a new concern whose organization was recently noted, and a business of warp mercerizing, yarn dyeing in warps and skeins will be carried on. Joseph Quarmby is president; George McKenzie, treasurer; and Thomas McKay, manager and buyer. Some improvements are to be made in the plant, including the installation of new machinery.

*Rhode Island, Saylesville. The Crefeld Waste & Batting Company has completed the work of moving from its old location to the new plant, located inside the yard of the Sayles' Bleacheries. A new building was erected and one of the old buildings of the original plant was moved beside it, the two forming the plant at the present time. The rest of the old buildings have been torn down and the site will be used by the Sayles' Bleacheries for a large storehouse. Some new machinery has been installed in the plant of the Crefeld Company.

FACTS AND GOSSIP.

California, Eureka. A letter has been received by a local promotion committee from C. G. Schellenburger of Battle Creek, Mich., regarding a location for a woolen mill. Mr. Schellenburger states that his plan is to secure a tract of about 200 acres adjacent to some town and to build a mill which would employ about 500 people. The plan is to sell lots in the tract. Mr. Schellenburger has been previously reported as in communication with various Southern cities.

Canada, Nova Scotia, Amherst. It is expected that some decision will be reached in about a month in regard to starting up the plant of the Hewson Pure Wool Textiles, Ltd. The mill is at present shut down.

Canada, Quebec, Warwick. The Cantin Company, operating a small woolen mill on Canadian tweeds, has been succeeded by La Compagnie Des Industries Cantin.

Connecticut, Putnam. Orders have been received by the Manhasset Mfg. Company, manufacturers of tire cloth from Sea Island cotton, which will necessitate operating the plant on a night and day schedule. It is understood that plans have been under consideration recently for an enlargement.

Connecticut, Willimantic. An increase of 5 per cent. in wages has been given the piece workers employed by the Windham Silk Company. This increase is due to the change in the working hours which took away from the piece workers three hours' labor each week.

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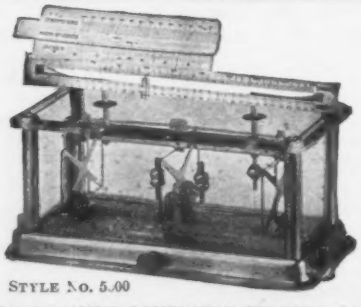

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MILL NEWS

Connecticut, Shelton. Reports that the Specialty Weaving Company, one of the mills of E. & H. Levy, New York, would move from Shelton is denied by H. L. Frecon, the superintendent of the mill. The story started from the fact that some of the looms were recently shipped to other mills of the company. Mr. Frecon states that new looms will be installed to take their place.

Georgia, Columbus. At the annual meeting of the Eagle & Phenix Mills further improvements in the plant were discussed.

Georgia, Newbern. The project headed by W. Ezra Johnson to organize a company for the manufacture of cotton novelties has been dropped.

Kentucky, Louisville. George Dunham, Starks Bldg., Louisville, formerly superintendent of the Falls City Woolen Mills, is organizing a company to build a woolen mill.

Maryland, Baltimore. The style of the Baltimore Fast Black Works, a branch of V. G. Bloede Co., has been changed to the Baltimore Finishing Company. This department bleaches and finishes cotton goods.

Maryland, Oella. The plant of W. J. Dickey & Sons, Inc., which has been closed for several days while extensive repairs were being made, has resumed manufacturing.

Massachusetts, Boston. At the annual meeting of the stockholders of the United States Worsted Co., to be held on March 7, the stockholders will be asked to vote on the question of reducing the common stock from $7,000,0000, its present amount, to $700,000 by reducing the par value from $100.00 a share to $10.00 a share; to see whether the stockholders will vote to give to the holders of second preferred stock the right to convert such stock at any time into common stock of an equal par value, to authorize the issue of $4,300,000.00 in common stock, $300,000.00 of which would be held in the treasury, the balance to be issued solely in exchange for second preferred stock as the holders may desire to convert it. The president's report to the stockholders informs them of the generally satisfactory condition of the affairs of the company and the progress that has been made in extricating it from the "financial as well as the manufacturing tangle in which the property was found". They propose to fund the $1,000,000.00 demand notes given to the bankers who advanced money to make up the deficiency in assets. These notes have been cancelled and in their place sinking fund income certificates for $1,300,000.00 are offered to all shareholders at the same terms as the bankers have taken them. After the payment of dividend on the first preferred stock a certain part of the remaining net income will be applied to the interest and reduction of principal of these certificates.

Massachusetts, Concord Junction. An increase in the capital stock of the Strathmore Worsted Mills is to be made from $225,000 to $350,000. The new shares are to be issued for cash at not less than par.

MILL NEWS

Massachusetts, Chicopee Falls. Eugene O'Neil has bought the interest of James F. Ash in the Hampden Bleachery and will assume full control of the plant. For the last 15 years Mr. Ash has been connected with the business as a partner in the firm of Dunn, Ash & O'Neil. Daniel J. Dunn died on August 13, and since that time the firm has been controlled by Mr. Ash and Mr. O'Neil. Mr. Ash expects to retire from active business, although his future plans are not definitely known.

Massachusetts, Fall River. The yarn selling department of the American Thread Company has been transferred from New York City to the office of the Kerr Mills, Fall River.

Massachusetts, Fall River. The Narragansett Mills were closed for a few days as a result of an accident to the fly wheel of the engine. A break was discovered while the engine was stopped and it was decided not to start the engine until repairs were made.

Massachusetts, Indian Orchard. The Hodges Fibre Carpet Company may incorporate under Massachusetts laws. The concern is at present a Maine corporation.

*Massachusetts, Lawrence. Charles T. Main, mill architect and engineer, Boston, has been engaged to appraise the damages sustained by the Pacific Mills, the Farwell Bleachery, and the Essex Company, by the seizure of real estate for the new Central Bridge. An effort is being made to reach an adjustment without litigation.

Massachusetts, Monson. No. 3 mill of A. D Ellis & Sons will run on a night and day schedule next week. The Somerset Woolen Company is running some departments nights.

Massachusetts, Spencer. Work has been temporarily suspended in the small woolen mill of Dufton Bros. on account of the breaking of the main shaft of the engine.

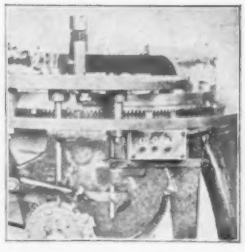
Massachusetts, Worcester. Charles F. Aldrich, referee in bankruptcy, has allowed the petition of the trustees of the Queensbury Mills for leave to sell all the assets for $92,000. This brings the affairs of the Queensbury Mills a step nearer the final adjustment. The business is being conducted by the trustees in bankruptcy.

Mississippi, Kosciusko. A reorganization of the Kosciusko Cotton Mills is being effected by J. W. Sanders of Tuscaloosa, Ala., former treasurer and manager of the concern. The concern's embarrassment was due to the failure of C. A. Stafford & Company, New York selling agents.

*Mississippi, Wesson. S. Odenheimer, president of the new Wesson Operating Company, advises that the new company does not intend to start up the Mississippi Mills as indicated in current reports.

New Jersey, Paterson. A company has been organized under the name of Levine, Greenspan Company to manufacture and deal in textiles. The incorporators are Nathan Greenspan, Mayer Levine, and Abraham Klenert, all of Paterson.

ELM CITY COUNTER



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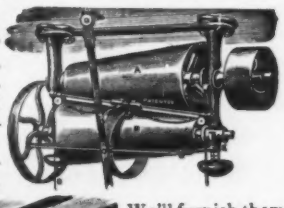

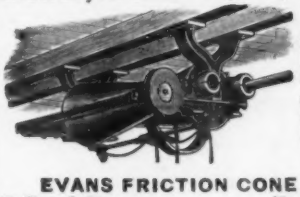

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MILL NEWS.

New Jersey, Camden. The business of the Salisbury Worsted Mills, Clark & Jones, proprietors, has been incorporated with capital stock of $120,000. Augustus P. Clark, Franklin E. Jones, and Harry A. Jones are the incorporators. 2,080 spindles (Bradford system) are operated on worsted yarns for weaving and knitting at 6th and Byron Sts.

*New Jersey, Paterson. The William Rogers Company has been incorporated with capital stock of $25,000 by W. Le Roy Rogers, president and manager, and Annie B. Rogers, treasurer. The new corporation takes over the throwing plant in the Phoenix Mill formerly operated by the late William Rogers. There will be no change in the business.

*New York, Binghamton. There will be no immediate changes in the plant of J. & D. D. Miller Company, recently purchased by the Cedar Cliff Silk Company of Paterson, N. J. It will be operated as a branch of the Paterson plant and the name will be changed to the Cedar Cliff Silk Company.

New York, New York City. The Great Northern Cotton Waste Co., Inc., has been organized with capital stock of $10.000 to manufacture and deal in textile raw materials and cotton waste. The incorporators are E. M. Kirkpatrick, Valley Cottage, N. Y.; Harry B. Russell, 144 W. 139th St., and William J. Wilks, 299 Madison Ave.

New York, Hornell. A new company has been organized under the name of Gardiner & Highet Co., Inc., to manufacture braids, tapes and ribbons. The company has capital stock of $200,000. Frank B. Highet, of Greenwich, Conn.; J. G. Chapman, 383 St. Johns Pl., Brooklyn, and Louis A. Knott, 322 W. 71st St., New York, are the incorporators.

New York, Hornell. It is reported that a number of additions are planned by local mills. Late in 1913 the capital stock of the Merrill Silk Company was increased to $1,000,000, and the capital stock of the Merrill Hosiery Company was increased to $500,000. At the time these increases were reported it was stated that there would be no immediate enlargements. A few days ago a new company was organized under the name of the Gardiner & Highet Company, Inc., to manufacture braids, tapes and ribbons.

New York, Lockport. The incorporation of the Ontario Woolen Company, Inc., is reported with capital stock of $8,000 to manufacture batting, felts, linings, etc. The incorporators are David and Lida S. Mecorney and Ida M. Walker.

*New York, Johnstown. The local plant of the Little Falls Fibre Company was not sold as expected and the company will continue to operate a branch in Johnstown the same as heretofore.

New York, New York City. The Hamburg Silk Mills, Inc., have been granted a charter with capital stock of $50,000 to manufacture silk and other fabrics. The incorporators are Julius J. Michael, 560 W. 44th St.; Ralph H. Blum, 496 Riverside Drive, and others.

MILL NEWS

New York, New York City. The Empire Braid Works, Inc., have been granted a charter with capital stock of $30,000 to manufacture tassels, braids and fringe. The incorporators are Jacob Blitzer, 415 W. Broadway; Henry Sobel, 746 Broadway, N. Y., and Morris Sobel, Union Hill, N. J.

New York, New York City. The United Infants' Wear Company has been incorporated with capital stock of $12,000 to manufacture infants' and children's wear. The incorporators are Isador Silberman, Isaac Bierman, and Max Axelrod, all of 116 Wooster St.

New York, Penn Yan. A company has been organized under the name of the Penn Yan Cable Co., Inc., with capital stock of $50,000 to manufacture braid covered electric cables and knitted and woven goods. The incorporators are E. R. Ramsay, George S. Shepard, of Penn Yan, and William H. Neefus of East Orange, N. J.

New York, Watertown. J. Stabinsky & Sons, proprietors of the Watertown Paper Stock Company, are trying to interest the Chamber of Commerce in a project to build a mill here for the manufacture of shoddies and possibly heavy wool blankets.

*New York, Watertown. Little is known of the plans of the new Toohey Silk Mills, Inc., recently reported organized with capital stock of $100,000. The incorporators live in New York but it is intimated that the new company will operate a plant in Watertown. According to local report it has been rumored for some time that the Newell St. factory of Valentine & Bentley is to change hands, but C. H. Spittle, the local manager, has refused to make a statement.

North Carolina, Charlotte. According to report the Highland Park Mfg. Company is considering the purchase of a new manufacturing site to which company will remove and greatly enlarge its production.

North Carolina, Lexington. The Erlanger Cotton Mills Company has been incorporated with authorized capital stock of $600,000, by Abraham Erlanger, N. Y., Charles Erlanger, Baltimore, M. Erlanger, New York, Sidney E. Erlanger, N. Y., and George W. Montcastle, Lexington. For the past year a large cotton mill has been under construction at Lexington to manufacture cotton cloth for the B. V. D. underwear, made by Erlanger Bros., New York. It is understood the new cotton mill will now be transferred to the new corporation.

Ohio, Ashtabula. At the annual meeting of the Ashtabula Worsted Company Thomas J. Remick was elected president; E. A. Dunbar, vice-president; O. C. Topky, secretary; and P. C. Remick, treasurer. The question of issuing $25,000 to $50,000 of new preferred stock was taken up and a decision is to be reached at another meeting to be held shortly.

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Full information is given about each mill in almost every instance, viz.: the name of the company or firm, names of officers, agent, superintendent, the character of goods made, machinery equipment, i. e., the number of sets of cards (or combs), the number of spindles, number of looms; whether the mill uses steam or water power, whether there is a dye house or not, the names of the selling agents or if the mill sells direct, and in many instances the name of the man is given who buys the raw material and supplies. In this section of the Directory all the mills in one place are arranged under the head of that town, but so designated by boldface letters that the kind of mill is determined at a glance, so that a person looking, for instance, only for woolen mills can pick them out instantly. This system of arrangement is conceded to be the most convenient of any as it groups all the mills in one town together and is self-indexing, while at the same time those interested in a particular class of mills, such as cotton, silk, or knit, can find them as easily as if they were classified separately.

The Map Feature was originated by the Textile World in 1894, and is copyrighted. There are 19 of these textile maps, which show only the cities and towns where there are textile establishments. 19 maps.

An Alphabetical Index to the textile establishments in the United States and Canada, about 7000.

Mills with Worsted Machinery. A separate list is compiled of mills with worsted machinery for the convenience of those dealing exclusively with that branch.

The Yarn Trade Index. In this department are classified lists of manufacturers of different kinds of yarn who spin for the market. It gives the size of yarn spun and the form in which the yarn is put up, together with the selling agents of the mills, or if sell direct. About 900 names.

Classified List of Manufacturers This is a new section in which all the manufacturers of textile fabrics are listed under suitable headings showing the classes of goods made.

Commission and Order Section. In this department are classified lists of establishments doing dyeing, bleaching, printing, finishing, and mercerizing on order, sub-divided according to the class of work done. About 500 names.

Raw Material Section. In this department are complete lists of dealers and brokers in wool, cotton, shoddy, waste and extracts, and wholesale rag dealers. About 2500 names.

Selling Agents and Dry Goods Commission Houses in the principal cities of the United States, giving the character of goods handled. About 2300 names.

Textile Associations. Owing to the growing number of inquiries for information of the various associations a list of all the textile associations in the United States and Canada has been included in this year's Directory. The names of associations, officers and addresses are given.

Machinery and Supply Section. This contains a carefully classified index of builders of textile machinery and dealers in mill supplies. About 800 names and 500 headings.

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Vest Pocket Editions $1.00 for each of the three Sections, viz.:—

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Lord & Nagle Company

Textile Publishers, 144 Congress St., Boston

NEW YORK PHILADELPHIA CHICAGO

MILL NEWS

North Carolina, Salisbury. An old-established knitting company has had representatives in Salisbury looking for a suitable location for a branch mill and it is probable that a plant will be established here which will give employment to about 100 hands. No financial aid is required, but the company demands at least 100 hands to start this and a building suitable for manufacturing purposes. James H. Warburton, secretary of the Industrial Club, is receiving applications from prospective operatives. It is reported the company is a $400,000 concern and if labor and other conditions prove satisfactory a mill for a permanent branch, with complete knitting, dyeing and finishing departments, will be built here.

Ohio, Columbus. The Columbus Knitting & Mfg. Company has been incorporated with capital stock of $25,000 to manufacture knit goods by A. C. & M. E. Bonnet and others. The new company has purchased the plant and business of the W. H. Phelps Company and has been manufacturing for several months.

*Ohio, New Bremen. The interests of the Bakhaus family in the Bakhous & Kuenzel Company have been acquired by Godfrey and E. C. Kuenzel. N. S. Morgan, superintendent of the mill has resigned and his position will be filled by F. A. Kuenzel. It was noted previously that the name of the plant had been changed to the Kuenzel Mills Company. Godfrey Kuenzel is president and E. C. Kuenzel, treasurer and buyer.

Oregon, Bandon. It is reported the Bandon Woolen Mills will move to Cooston, beginning operations there about August 1. The plan is said to include tripling the capacity of the company. At present three sets and fourteen looms are operated on woolen goods.

Pennsylvania, Allentown. The Lehigh Bleachery & Dyeing Company is operating under new management. R. W. Roth is president and manager; J. W. Roth, vice-president, and C. S. Kuhusman, secretary and treasurer. They bleach knit goods and dye cotton skein yarns.

Pennsylvania, Bethlehem. The Wahls Ribbon Mfg. Company, Inc., is operating the silk ribbon plant formerly run by George Grube, making silk ribbons, bindings and belting, under the management of J. G. Fuehrer. The New York office is at 39 Lispenard St.

Pennsylvania, Bloomsburg. The partnership of E. C. Caswell and C. A. Caswell, under the name of E. C. Caswell & Company, has been dissolved by the death of E. C. Caswell on February 10. The business of manufacturing woolen goods in the plant at Bloomsburg will be continued by C. A. Caswell, the junior member of the firm. Several years ago E. C. Caswell turned over practically all of his interests in the plant and business to C. A. Caswell, who was his nephew, and the plant and business will be conducted as heretofore.

Pennsylvania, Chester. The Melrose Spinning Co., operating 8 sets, 1,520 mule spindles on cotton carpet and upholstery yarns, at Howard and Berks Sts., Philadelphia, are removing their equipment to the mills at 3d and Booth Sts. The Philadelphia office of the company is located at Mascher and Oxford Sts.

SUBJECT: Rats and Mice. 72 Front Street, New York, March 1st, 1914.

To Mill Owners or Superintendents Everywhere:

DEAR SIRS:

Our recent announcement brought us so many inquiries relative to DANYSZ VIRUS that it is difficult to answer each one in detail. The inquiry of the Patrick Wollen Mill Co. of Duluth is one that we can answer to advantage here as it is a frequent one. They wanted to know if we would make them a shipment of DANYSZ VIRUS, same to be paid for if it clears out all the rats and not paid for if it does not. Now as we are the distributors for DANYSZ VIRUS in this country and do not prepare it ourselves we naturally cannot guarantee specific results. The satisfaction obtained by such users of DANYSZ VIRUS as Campbells Stores, Hoboken, N. J.; Stephens Mfg. Co. of Fall River, Mass.; The Eagle Phoenix Mills of Columbus, Ga. and hundreds of others who use DANYSZ VIRUS and DANYSZ VIRUS only, when troubled with rats and mice should be a sufficient guarantee. You also will find it the most satisfactory means of solving your rat problem. Write us today.

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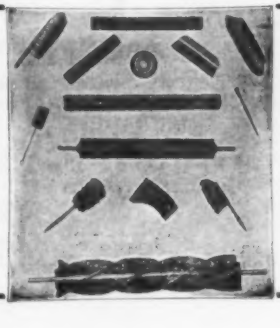

Mason Brush Works
Worcester, Mass.
Agt. and Mgr.
CHAS. A. O'NEIL

MILL NEWS

Ohio, Cleveland. The capital stock of the Wovenright Knitting Company has been increased from $25,000 to $50,000. Cotton seamless half hose is manufactured.

Pennsylvania, Chester. The Novelty Yarn Company, a new concern which recently started in Philadelphia at Mascher and Oxford Sts., where they operated a plant on novelty yarns for different lines of textile manufacture, have removed their equipment to 3d and Booth Sts., Chester, where much larger quarters have been secured. They will retain a Philadelphia office at Mascher and Oxford Sts.

Pennsylvania, Chester. Philadelphia parties are reported as taking over the mills in Chester, formerly operated by Murphy & Bro., in which they contemplate installing an equipment for the manufacture of artificial silk. Definite information regarding the operation cannot be secured at this time.

Pennsylvania, Danielsville. There are prospects that a silk mill will be located in Danielsville in the near future.

*Pennsylvania, Green Lane. The Green Lane Textile Company, recently incorporated with capital stock of $15,000, is operating 60 looms on broad silks for the cutting-up trade. Harvey Dietrich is president; August F. Jarrett, treasurer, and John G. Hutchison, superintendent. Mr. Dietrich is the buyer. Alfred Sohland, 111 Fifth Ave., N. Y., sells the product.

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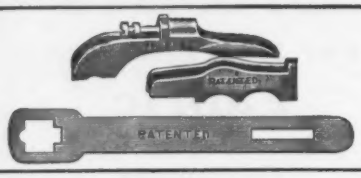

MILL NEWS

*Maine, Skowhegan. A local report states that officials of the American Woolen Company were in Skowhegan recently and are reported to have decided on changes to be made in the Anderson Mills, the Arms Mill, formerly known as the Marston Mill, and the Commonwealth Shoe Factory building, which was recently purchased by the American Woolen Company. It is reported that they have decided to remove the finishing and weaving machinery from the Anderson Mill property to the Commonwealth factory building and to add enough more looms to bring the total up to 125 looms. The rooms now occupied by the weaving department at the Anderson Mill will be filled with carding and spinning machinery, increasing the plant from 12 sets to 25 sets. It is stated the Arms Mills will continue as a worsted mill, and will be opened at an early date. This could not be verified at the office of the American Woolen Co.

New Hampshire, Salmon Falls. Six hundred new automatic looms are to be installed by the Salmon Falls Mfg. Company, replacing old equipment. The plant now contains 48,000 ring spindles and 1,349 looms, making mostly coutils and sateens. Arthur B. Silsbee is president; Ronald T. Lyman, treasurer; Lot W. Quealy, agent, and H. R. Whitehead, superintendent. Mr. Quealy buys the supplies and Mr. Lyman the coal and cotton.

*New Hampshire, Suncook. Two hundred automatic looms for wide sateens and twills are being installed in the Webster Mill of the Suncook Mills. Two hundred new looms, one-half of which will be 20 harness dobby looms for fancy colored shirtings and checks have been ordered for the China Mill Dept. It is expected that by July 1 the Suncook Mills will be fully equipped with automatic looms.

North Carolina, Albemarle. New equipment has been ordered for the dyeing department of the Efird Mfg. Company and will be installed in March.

North Carolina, Asheville. An order will be placed shortly by the French Broad Mfg. Company for eight new jacquard looms and a further installation of 52 new looms is contemplated. No extension of the buildings will be necessary. This company manufactures quilts and has equipment of 84 looms. Edward F. Wellman is superintendent and buyer. The product is sold by The Farish Company, New York.

*North Carolina, Burlington. It is understood the King Cotton Mills Corp. will discontinue the weaving department and convert the plant into a modern hosiery yarn mill. Plans and specifications are now being prepared for the change. It was reported a short time ago that an addition would be built and the capacity of the plant increased from 3,300 spindles to 10,000 spindles.

North Carolina, Charlotte. Contract for 5,000 additional spindles has been awarded by the Chadwick-Hoskins Company and this new equipment will be installed in No. 5 mill replacing old machinery. A few of the spinning frames to be taken out of No. 5 mill will be installed in one of the other plants of the concern.

North Carolina, Concord. Two new dyeing machines have been ordered by the Gibson Mfg. Company, manufacturers of madras cloth and white and colored yarns.

North Carolina, Cornelius. An addition is to be built by the Cornelius Cotton Mills and about 1,800 spindles will be installed. Preliminary work on the enlargement is just starting. When this increase is completed the plant will have about 7,300 ring spindles and 200 looms.

North Carolina, Davidson. An increase may be made in the capital stock of the Delburg Cotton Mills for the purpose of building an addition and installing new machinery. The company is considering the installation of new equipment which will double the present capacity. The capital stock is now $50,000. 20s to 30s cotton hosiery yarns in skeins and on cones are manufactured on 4,300 spindles. J. P. Monroe is president and J. Lee Sloane, secretary, treasurer and buyer.

North Carolina, Gastonia. The Dunn Mfg. Company will add to its equipment for electric drive twenty-three motors ranging from 5 h. p. to 35 h. p., switches, etc., which have been ordered from the General Electric Company.

North Carolina, Kannapolis. The Cabarrus Cotton Mills have arranged to install additional equipment for electric drive comprising 54 motors ranging from 5 h. p. to 50 h. p., switchboard, controllers, etc., furnished by the General Electric Company.

North Carolina, Kannapolis. Contract for the addition to the plant of the Paterson Mfg. Co. has been awarded to T. C. Thompson & Bros., of Charlotte and Birmingham. The enlargement will be 2-stories high, 240 by 78 feet, and will be equipped with 10,000 spindles and preparatory machinery.

*North Carolina, King's Mountain. Equipment has been ordered by the Cora Cotton Mills for the recently reported increase. Five thousand spindles with preparatory machinery will be installed.

*North Carolina, King's Mountain. The Phenix Mfg. Company has completed the construction of an addition and about 320 looms are to be installed at once. The concern plans to weave its yarns instead of selling them as heretofore.

North Carolina, Maiden. Two new lappers have been installed by the Union Cotton Mills to take the place of old equipment.

North Carolina, Rockingham. An increase of about 4,000 spindles and 100 looms is to be made by the Hannah Pickett Mills, manufacturers of wide print cloths.

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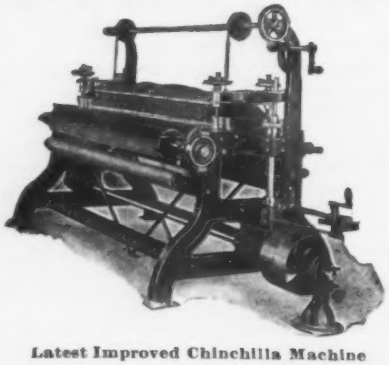

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WRITE FOR PARTICULARS

MILL NEWS

New Jersey, Garfield. Improvements are being made in the plant of the Garfield Worsted Mill and the New Jersey Worsted Spinning Company. The former concern manufactures worsted dress goods, and the spinning company makes worsted and merino yarns on the French system.

*North Carolina, Selma. An increase of 2,880 spindles has been made in the plant of the Ethel Cotton Mills, making a total of 8,160 spindles. Recently the hosiery knitting plant was disposed of as noted and the space occupied by this department has been filled with the new machinery.

*North Carolina, Spray. Plans for the new central power plant to supply the mills in Spray that are controlled by Marshall Field & Company will be prepared by F. P. Sheldon & Son, Providence, R. I. The cost will be about $150,000.

North Carolina, Spray. A new dyeing machine has been ordered by the Nantucket Mills.

Rhode Island, River Point. The mule spinning in the Arctic Mills of B. B. & R. Knight is being replaced with ring spinning frames and according to report this change will be carried out in all the Pawtuxet Valley mills of B. B. & R. Knight.

South Carolina, Camden. One hundred new looms are now being set up in the Hermitage Cotton Mills and a further installation of an additional 100 looms has been ordered. The capital stock was recently increased from $225,0000 to $250,000. Fine sheetings are manufactured.

Tennessee, Knoxville. The Knoxville Spinning Company, manufacturers of cotton knitting yarns, are adding two new speeders and six spinning frames.

Virginia, Lynchburg. A large amount of new machinery is to be installed by the Lynchburg Cotton Mill Company to take the place of old equipment. Sheetings and osnaburgs are manufactured on present equipment of 45,000 spindles, 300 broad and 1,100 narrow looms.

Tennessee, Knoxville. The Appalachian Mills have purchased the plant of the Holston Underwear Mills in Knoxville and after making alterations in the building will equip it with 8,000 spindles for making 8s to 14s cotton yarns for men's underwear. Construction work on alterations will be started about April 1 and it is expected yarn production will begin about September 1. This department will be operated by electric power. The Appalachian Mills manufacture men's cotton ribbed underwear. M. D. Arnold is president, R. N. Lotspeich, treasurer, and M. G. Thomas, manager and buyer. The New York office is at 346 Broadway.

Mills Starting Up.

Connecticut, Eagleville. The Eagle Mill, which has been closed since the death of James H. Ross, the principal owner, will be started up and sold as a going concern so that the Ross estate may be settled.

MILL NEWS

Georgia, Quitman. The Quitman Mfg. Company has been organized with capital stock of $100,000 to take over and operate the Atlantic & Gulf Mills, now closed. S. M. Turner, S. S. Rountree, E. J. Young and G. M. Spain are the organizers. L. W. Cuddy, superintendent of the Bibb Mfg. Company, Columbus, will be general manager, according to report. It is understood the mill will be started up in February.

North Carolina, Central Falls. A new corporation has been organized under the name of the Central Falls Mills to take over the Central Falls plant of the Worth Mfg. Company. J. B. Stroud of Greensboro, R. L. and J. M. Caveness are the incorporators. The new concern has a capital stock of $100,000. The Central Falls plant has 4,256 spindles and 186 looms which have been operated on colored cottons.

*North Carolina, Landis. The Corriher Mills will begin manufacturing within a short time. The building was erected several years ago and late in 1913 orders were placed for machinery to equip it as a cotton hosiery yarn mill.

North Carolina, Salisbury. M. L. Jackson has bought the looms formerly operated by the Littmann Mills and has leased the building.

South Carolina, Yorkville. Towels are being manufactured in the York Cotton Mill, which was purchased and largely re-equipped by Cannon & Company.

Massachusetts, Holyoke. The Farr Alpaca Company will install additional electric drive equipment in its mills, consisting of three 125-kv.a. transformers, three 500 kv-a. air blast transformers with a 6,000 cubic ft. blower set and a switchboard. The apparatus has been ordered from the General Electric Company.

Massachusetts, Millbury. Humidifying equipment is being installed in the Millbury Mills, No. 2. C. A. Root is treasurer and A. C. Neff, superintendent.

Minnesota, St. Cloud. Enlargements and improvements to the St. Cloud Woolen Mills, which were started when the property was taken over by the present owners, have been completed. These include an addition, 28 by 48 feet, 2 stories and basement, a boiler house and a 1-story warehouse, 60 by 30 feet. The equipment is now 3 sets of cards and 9 looms, making knitting yarns, blankets, flannels and mackinaws. Joseph Rose and Stephen Hall are the proprietors.

New Hampshire, Peterborough. A new 150 h. p. engine is being installed in the plant of Joseph Noone's Sons Company, manufacturers of woolen specialties for mechanical purposes.

New York, Amsterdam. An addition to the plant of the Amsterdam Carpet Company giving them a total of 16,000 square feet of floor space, was recently completed. Wool carpet yarns are manufactured and some commission spinning is also done.

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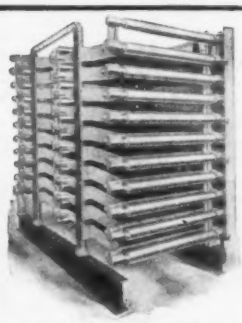

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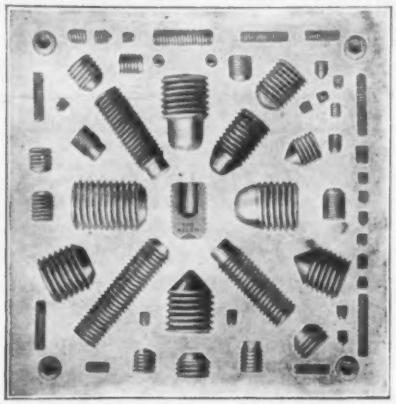

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TEXTILE BOOKS

THE following list contains the titles of some of the textile books which we recommend. We carry these in stock for prompt delivery. Our full descriptive catalog, giving lists of practically all textile books published in the English language, with a brief synopsis of contents, will be mailed free.

General Subjects

Advanced Textile Design, *Watson*	$4 00
Art of Soap Making, *Watt*	3 00
Calculations in Yarns and Fabrics, *Bradbury.*	1 25
Carpet Manufacture, *Bradbury*	3 00
Color in Woven Design, *Beaumont*	6 00
Design Texts, *Umpleby*	2 50
Drying by Means of Air and Steam, *Hausbrand*	2 00
Flax, Hemp and Jute Spinning and Twisting, *Carter*	3 00
Improved Slide Rule, *Hogg*	3 50
Introduction to Study of Textile Design, *Barker*	2 50
Jacquard Weaving and Designing, *Bell*	4 00
Manual of Weave Construction, *Kastanek*	1 00
Silk Throwing and Waste Silk Spinning, *Rayner*	2 50
Simplex Tables	50
Spinning and Twisting of Long Vegetable Fibres, *Carter*	5 00
Story of Textiles, *Walton*	3 25
Technical Testing of Yarns and Fabrics, *Herzfeld*	3 50
Textile Design, *Woodhouse and Milne*	3 25
Textile Design, *Umpleby*	3 00
Textile Design and Color, *Watson*	2 50
Textile Fibres, *Matthews*	4 00
Textile Soaps and Oils, *Hurst*	2 50
Textiles, *Barker*	2 00
Warp Preparation and Weaving, *Nelson*	3 00
Waterproofing of Fabrics, *Mierzinski*	2 50
Weaving, Plain and Fancy, *Nelson*	1 25

Cotton Manufacture

Carding and Spinning, *Ivey*	$1 00
Chemistry of Tape Sizing, *Cooper*	1 50
Cotton Carding, *Lindsay*	50
Cotton Cloth Designing, *Holmes*	2 00
Cotton Combing Machines, *Thornley*	3 00
Cotton Manual, *Broadbent*	75
Cotton Mill Commercial Features, *Tompkins*	5 00
Cotton Mill Machinery and Calculations, *Parker*	1 50
Cotton Spinning, *Hedrick*	3 00
Cotton Spinning (3 vols.), *Taggart*	7 50
Cotton Spinning, (3 vols.), *Thornley*	6 50
Cotton Waste, *Thornley*	3 00
Humidity in Cotton Spinning, *Dobson*	50
Loomfixing and Weaving, *Ivey*	1 25
Mule Spinning, *Thornley*	3 00
Plain Series of Cotton Spinning Calculations, *Cook*	1 00
Practical Cotton Calculations, *Whitworth*	1 00
Self Acting Mules, *Thornley*	3 00
Structure of the Cotton Fibre, *Bowman*	3 00
Students' Cotton Spinning, *Nasmith*	3 00

Woolen and Worsted Manufacture

Cone Drawing, *Buckley*	$ 50
Faults in the Manufacture of Woolen Goods and their Prevention, *Reiser*	2 50
Finishing of Textile Fabrics, *Beaumont*	4 00
How to Make a Woolen Mill Pay, *Mackie*	2 00
Manual of Cloth Finishing	6 50
Practice in Finishing Woolens and Worsteds, *Greene*	50
Principles of Wool Combing, *Priestman*	1 50
Principles of Woolen Spinning, *Priestman*	2 50
Principles of Worsted Spinning, *Priestman*	2 50
Structure of the Wool Fibre, *Bowman*	3 00
Wool Carding and Combing, *Barker and Priestly*	1 50
Woolen and Worsted Loomfixing, *Ainley*	1 00
Woolen and Worsted Finishing, *Zimmerman*	3 00
Worsted Overlooker's Handbook, *Buckley*	50
Worsted Preparing and Spinning, *Bradbury and Buckley*	1 50

Bleaching, Dyeing, Printing, Finishing, Etc.

Aniline Black, *Noelting and Lehne*	$5 00
Bleaching and Dyeing of Vegetable Fibrous Materials, *Hubner*	5 00
Bleaching of Linen and Cotton Yarn and Fabrics, *Tailfer*	5 00
Chemistry and Practice of Finishing (2 vols.), *Bean and McCleary*	15 00
Chemistry and Practice of Sizing, *Bean and Scarisbrick*	10 00
Color Printing of Carpet Yarns, *Paterson*	3 50
Dressings and Finishings for Textile Fabrics and Their Application, *Pollyn*	3 00
Dyeing of Textile Fabrics, *Hummel*	1 75
Labratory Manual of Dyeing and Textile Chemistry, *Matthews*	3 50
Manual of Dyeing (2 vols.), *Knecht, Rawson and Loewenthal*	12 00
Mercerization (2 vols.)	7 50
Methods of Textile Chemistry, *Dannerth*	2 00
Practical Cotton Finishing	1 25
Principles and Practice of Textile Printing, *Knecht and Fothergill*	10 50
Principles of Bleaching and Finishing of Cotton, *Trotman and Thorp*	5 00
Printing of Textile Fabrics, *Rothwell*	6 00
Science of Color Mixing, *Paterson*	3 00
Silk Dyeing, Printing and Finishing, *Hurst*	2 00
Textile Chemistry and Dyeing, *Olney*	3 00
Textile Fabrics and Their Preparation for Dyeing, *Hasluck*	1 00

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Lord & Nagle Co., Boston, Mass.

MILL NEWS

New Jersey, Passaic. It is announced that Forstmann & Huffmann Company, manufacturers of woolens and worsteds for men's and women's wear and French spun worsted yarns, have awarded the contract for a $200,000 addition to be erected at Garfield. The new mill will cover an area of 122,000 square feet. It is reported that the company has orders from France for some of its high grade novelties. The present equipment is 14 sets of woolen cards, 32 worsted cards, 48 combs, 50,000 woolen and worsted spindles, and 900 broad looms. Julius Forstmann is president; Carl Muselius, treasurer; and Fr. Kick and Otto Schmidt, superintendents.

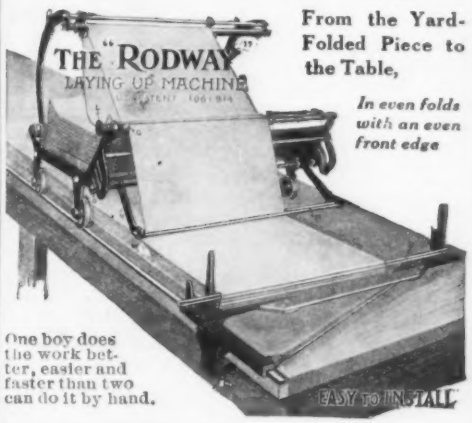
*Ohio, Cleveland. The authorized capital stock of the Cleveland Worsted Mills Company is to be increased from $3,000,000 to $10,000,000. $1,500,000 of the new stock is to be issued at once, $750,000 of this being issued to stockholders as a stock dividend, and $750,000 being offered for sale, the money received therefrom to be used in the erection of an addition at Ravenna, the building of a 250-loom mill, the location of which has not been decided, and the building of a recreation building in Cleveland for employes. $250,000 of the new stock will be set aside to be sold to employes at par, and the company will finance the purchase for them. The addition at Ravenna has been noted previously. It will be 4 stories and basement and will be used strictly for finishing, examining, specking and office purposes. George H. Hodgson, general manager, believes that the addition can be built now on a basis of less cost than will be possible a year from now. The construction contract has been awarded to the Hunkin-Conkey Construction Company, of Cleveland, who are now proceeding with the work. It has not been decided whether the 250-loom addition will be built at Cleveland, Jamestown or Providence. The recreation building will be built in Cleveland, in fact plans are now preparing for it and will provide for a structure 3 stories high, with a roof laid out for the use of employes in the summer time for hand ball and various other forms of recreation. George S. Rider & Company, architects, are preparing the plans.

*Vermont, Cavendish. The changes and improvements being made by Gay Bros. Company, manufacturers of fine satinets, comprise the taking out of four old looms and the setting up of eight new looms. This will give total equipment of five sets of cards and 70 looms.

Massachusetts, Clinton. It is reported that James B. Jennings, representing a Rhode Island concern, has leased the Victor Mfg. Company's mill and will start up the plant on women's dress goods.

HAROLD R. SHIRLEY
242 Chestnut St., Philadelphia, Pa.
French Spun Worsted and Merino Yarns
Bradford Spun Yarns
Woolen Yarns
FOR WEAVING AND KNITTING

To Fold to Any Length



From the Yard-Folded Piece to the Table,

In even folds with an even front edge

One boy does the work better, easier and faster than two can do it by hand.

The RODWAY Type . . . $150.
The SHUTTLE Automatic . 400.

Write for circulars and users' references

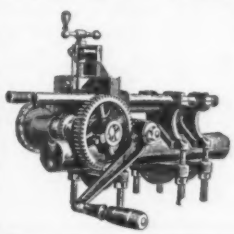
The Shuttle Machine Company
18 East 17th Street, New York

This Brush
is the best Mill and Loom Duster at the price on the market

Write for Prices and Free Sample

M. Cocker & Co., Phila., Pa.

YOUR REPAIR SHOP
Is not complete unless equipped with one of these
BURR KEYSEATERS



They cut perfect keyseats in shafting anywhere. Save time, delays and money. No. 1 keyseats shafts to 5 in. diameter. Price with full set of cutters, $40.00 net. No. 2 takes shafts to 8 ins. Price, with cutters, $75.00 net.

Interesting booklet free.

John T. Burr & Son
440 Kent Avenue
BROOKLYN, : N. Y.

Not Too Late

Doubtless you have often seen our advertisement in the pages of this journal. You may often have thought you would try

Wyandotte Textile Soda

— and —

Wyandotte Concentrated Ash

But you have from time to time put off sending the order. Are hesitation and delay good business principles? Don't you realize that large quantities of these materials are being used, and that those mill men who do use them have a source of profit which you might have, but which you do not have?

You are a little late in accepting the opportunities offered by these products. Days that are gone never return, so why hesitate longer? An order to your supply house for a quantity of these articles or a letter to us for further information will result in much more than you ever thought possible. Will you let us prove it?

Order from your supply house.

The J. B. Ford Co. Sole Mfrs., Wyandotte, Mich.

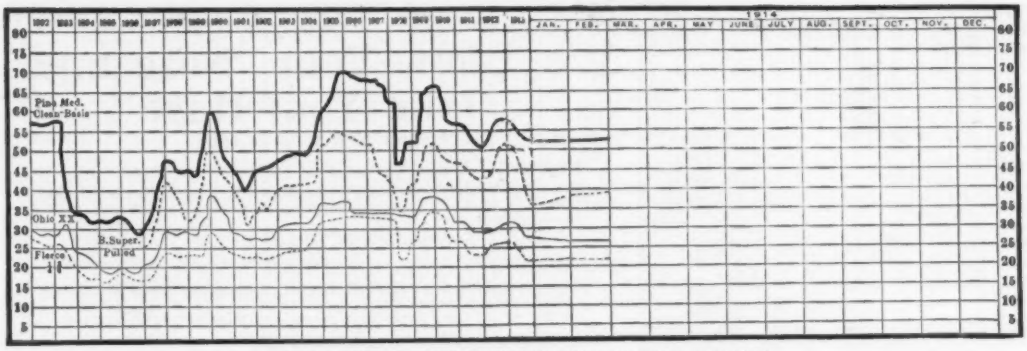


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

THE WOOL MARKET

The wool markets both here and abroad are firm and prices have advanced from 5 per cent. to 10 per cent. This has placed spinners and manufacturers in a still more difficult position, particularly in this country, where during the past three months they have been forced to do business at lower prices for goods and higher prices for raw material. The firmness of the wool market must eventually result in an increased use of wool substitutes. The mills are not well supplied with orders and purchases of wool have been for immediate requirements, which in the aggregate have amounted to a considerable volume. American stocks of both foreign and domestic wools are small and Eastern dealers have operated freely in the West, a considerable quantity of wool having been bought while on the sheep's back. Prices are somewhat lower than last year, but the reduction is not what was anticipated and freely predicted as a result of the removal of the wool tariff. This indicates, not that the tariff failed to affect prices, but that the effect of the reduction has been largely neutralized by the increased demand for wool in all the markets of the world.

MILL NEWS

Pennsylvania, Philadelphia. The Bernice Mfg. Co., with Dyson & Goodman as proprietors, are operating 10 broad looms at Somerset and Boudinot Sts., under the name of the Bernice Manufacturing Co., on men's wear worsteds and cottons, which they are selling direct.

*Connecticut, Mechanicsville. Changes and improvements being made by the French River Textile Company consist principally of the remodeling of the dye house, and this work is nearly completed. The M. N. Allen Construction Company of Walpole, Mass., is doing the construction work.

Indiana, La Porte. Ten new wide looms have been ordered by the La Porte Woolen Mills, bringing the total equipment up to 13 sets of cards and 98 looms.

Kentucky, Mayfield. One set of cards with equivalent spinning equipment is to be installed in the Mayfield Woolen Mills. Current reports that the branch at Paducah is to be enlarged are incorrect. The Paducah branch is a clothing manufacturing plant using the fabrics made at the woolen mill in Mayfield. M. J. Wright is buyer.

Maine, Dexter. Six new looms driven by motors are being installed in the upper mill of the Morrison Woolen Company. The outlook is bright for a busy season during the spring and summer.

LOGWOOD BLACKS

FASTNESS TO FULLING

LOGWOOD BLACKS properly dyed are of superior fastness to fulling.

Shoddy stock and rags can be stripped and mordanted for a Logwood Black in the same bath.

Logwood dyed stock is particularly adapted for interweaving with white wool, cotton and silk in fabrics requiring *severe fulling* and *steaming*.

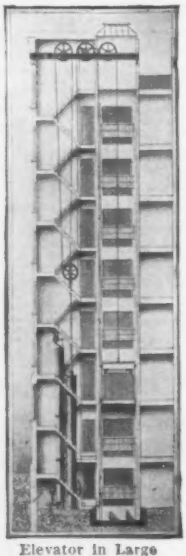
The appearance and texture of the resulting fabrics are especially pleasing to the trade.

AMERICAN DYEWOOD COMPANY

NEW YORK PHILADELPHIA BOSTON HAMILTON, ONT.

Direct Acting

Double Geared



Elevator in Large Soap Factory in Jersey City

We Blow Your Nose and Make Your Hose

We get you at both ends.

YOU SEE IT IS THIS WAY:

The Onyx Hosiery folks, who make stockings by the million for the millions and are sold in every shop in the land, like most concerns that have both **Steam** and **Brains** have

HOOKED HER TO THE BILER

And now today here comes the **Acheson Harden Co.**, of Passaic, N. J. with the order for the elevator equipment of their big new factory.

The **Acheson Harden Co.** are the largest handkerchief makers in the world, employing over 3000 hands.

You've wiped that pretty little nose of yours on them many and many a time.

But why are they Hookin' 'er to the Biler?

If you are **Half Smart** "you will set up and take notice."

Here's a Pointer—

Across the street from **Acheson Harden Co.** are the **Gera Mills** covering a township.

The **Gera Mills** are equipped with Ridgway Elevators.

Up the street is the **Passaic Metalware Co.** They are equipped with Ridgway Elevators.

Around the corner is the **Okonite Co.** They are equipped with Ridgway Elevators.

Up on the hill is the **Samuel Hird & Son's Worsted Mills.** They are equipped with Ridgway Elevators.

Down by the river is the **Hammerschlag Paper Co.** They are equipped with Ridgway Elevators.

If you are **Real Smart** you will "Ketch on" and find out while all these big concerns

"Hook 'er to the Biler"

CRAIG RIDGWAY & SON CO., Coatesvile, Pa.

ELEVATOR MAKERS TO FOLKS WHO KNOW

ALFRED SUTER, TEXTILE ENGINEER

200 Fifth Avenue, - New York

Importer of all the latest types of

Testing Instruments
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Universal Cloth & Yarn Analyzing Set
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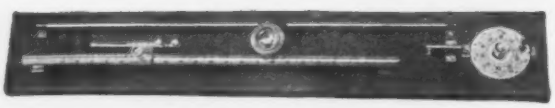
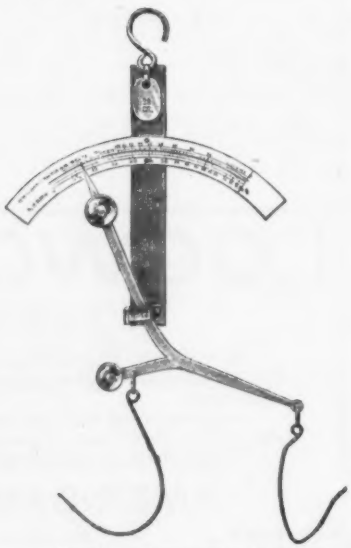


20" Twist Tester, with take-up registering device and magnifying glass for spinning twist



Combers Percentage Scale

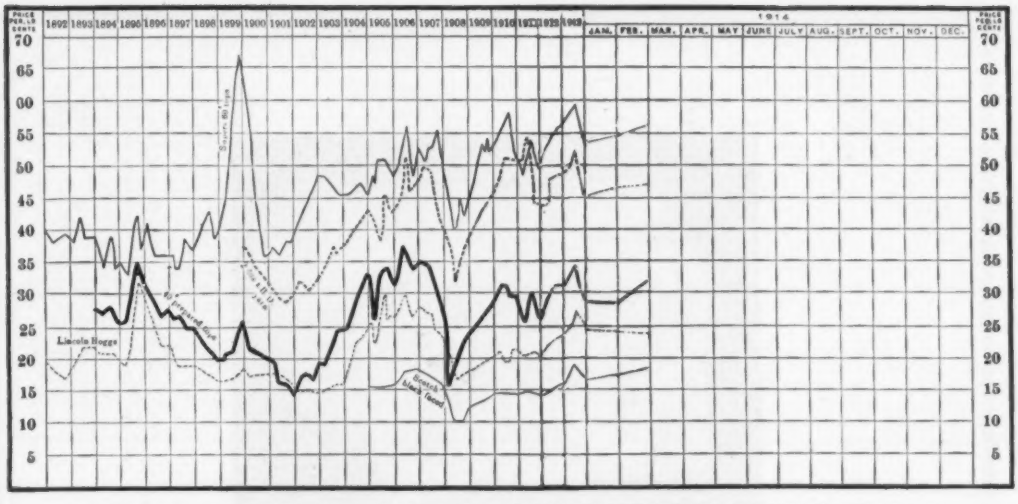


CHART SHOWING COURSE OF PRICES FOR WOOL, TOPS, AND WORSTED YARN AT BRADFORD, ENGLAND

THE BRADFORD MARKET

Bradford, Eng., Feb. 25, 1914

The rise in prices during the month owes more to the wool situation than to the demand for consumption, in which last there is little perceptible change. All materials are firm at the new levels, but the practicability of keeping the machines fully employed and of making profits upon recent purchases remains to be proved. General manufacturing commitments are more than covered, for in anticipation of continued dearness, requirements have been anticipated by makers and users of yarn. Orders for fabrics are still on the hand-to-mouth scale and buyers refuse to increase their quantities.

Topmakers quote protective prices for forward deliveries and are not keen to sell. Of course the fall in the money rate is of assistance to holders of wool. Even spinners who have paid the advanced rate are half of the opinion that prices may come back again to the January level. A better demand has been found for 2/40s crossbred, but the quantities are not large. Merino spinners have booked a fair quantity of new business and there are grounds for saying that one of the best of these has about 80,000 pounds booked for American account and that there is inquiry also from Canada.

Desirable parcels of English wool are getting scarce and advances are being paid on such qualities as North hoggs. It will not be surprising to find activity in the London sales during March, but as the running is being made by wool and not by sale of goods uncertainty of the permanency of values may continue after that date.

MILL NEWS.

Pennsylvania, Pottsville. The business of the Anthracite Knitting Mill, a concern started up a year or two ago by John Hock, has been incorporated under the name of John Hock Knitting Mills, with capital stock of $10,000. The officers are Harry Nagle, president and superintendent; H. W. Glassmire, vice-president; John Hock, secretary, treasurer and buyer. Seven knitting machines and 27 sewing machines are operated on children's waists, the product being sold through New York.

Pennsylvania, Pottsville. Ost & Hay, proprietors of the Mound City Knitting Company, are operating 10 knitters and 8 sewing machines on women's knit underwear.

Pennsylvania, Pottsville. The Valley Knitting Mills, Graves & Faust, West End Ave., are operating 14 knitters and 10 sewing machines on women's cotton ribbed underwear, using 24s and 26s cotton yarn.

Pennsylvania, Pottsville. The Jacob Boltz Knitting Mill, 317 N. 9th St., has been equipped with 8 knitting machines and 14 sewing machines, which are operated on women's cotton union suits. Jacob Bolz is proprietor and buyer, buying 24s and 26s cotton yarn on cones.

*Pennsylvania, Wilkesbarre. R. C. Werkheiser has not completed the details of his knitting mill project, previously noted.

Rhode Island, Central Falls. An overtime schedule is in force in the carding department of the Blackstone Stocking Company. Men's, women's and children's wool, worsted and merino hosiery is manufactured.

*Tennessee, Jasper. At a recent meeting of citizens held in the interest of the hosiery knitting mill project funds were liberally subscribed and it is probable that a plant will be established. E. E. Johnson, County Court Clerk, is interested.

ROLLER, CLEARER AND SLASHER CLOTHS

Mill cloths bearing our trade-mark are of uniform high quality, honest material and full weight. They are made with exact knowledge of your requirements by the most experienced Felt makers in this country. Their use produces the best yarns at the least cost. Order our Brand. The trade-mark on every yard protects you.

IF YOUR MILL SUPPLY HOUSE IS OUT OF STOCK WE WILL SHIP TO YOU DIRECT

American Felt Company
TRADE MARK

American Felt Company
TRADE MARK

BOSTON, 103 Bedford Street
NEW YORK, 114 E. 13th Street

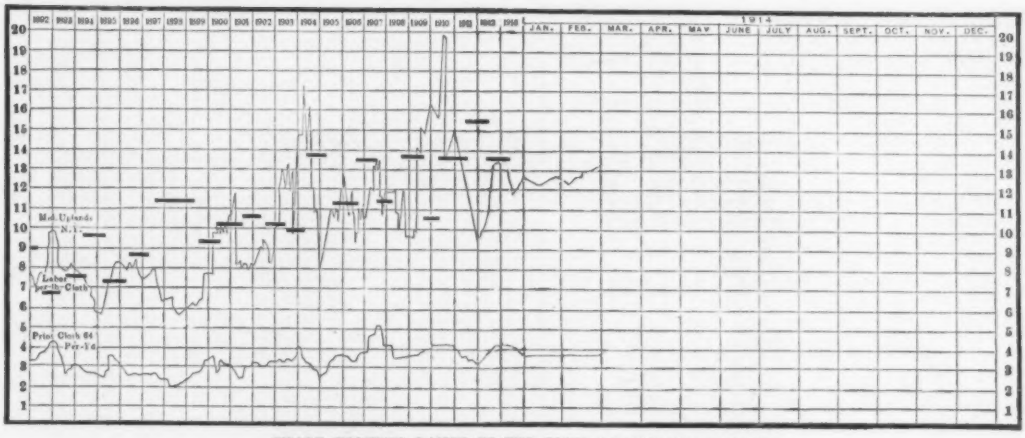


CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE

The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.

THE COTTON MARKET

The market for raw cotton has been free from the influences of speculation. Prices declined slightly since our last report, but the loss has recently been made up. The movement into sight has been fairly large, this being all the more significant because of the usual decrease in the shipments at this time of the year. The cotton trade is undoubtedly being influenced greatly by the agitation for a reform in the methods of trading, particularly on the New York Cotton Exchange. This effect has been increased recently by reason of the attacks on New York methods by exchanges in other parts of the country. The goods market has been quiet and fairly firm both in this country and abroad.

The movement of cotton into sight from September 1st to February 27th is reported by the "Chronicle" for a series of years as follows:

Year	Bales
1913-14, Feb. 27	11,786,796
1912-13, Feb. 28	11,173,749
1911-12, March 1	12,694,904
1910-11, March 2	10,198,987
1909-10, March 3	8,632,060
1908-09, March 4	11,141,544

The same authority estimate the world's visible supply on February 27 at 6,187,490 bales, as compared with 5,589,305 on the corresponding date in 1913, 6,033,781 bales in 1912, and 4,861,060 bales in 1911.

Leading grades of Egyptian cotton are quoted as follows by Richards, Atkinson & Haserick:

S. E. P.	21½
O. R. D.	20⅝
T. I. Z.	19¾
A. D. E.	19⅜
M. A. H.	17½

MILL NEWS.

*North Carolina, Greenville. Preliminary work has been started on the plant for the new Greenville Cotton Mills, Inc., by the Gallivan Bldg. Company, of Greenville, S. C. Particulars of the buildings have been noted previously. 5,200 spindles and a steam power plant of 200 h. p. capacity will be installed to manufacture 8s to 20s hosiery yarns on cones. The capital stock of this concern is $90,000. J. G. Moye is president; E. B. Higgs, vice-president and treasurer; and W. H. Norris, manager and buyer.

Alabama, Jacksonville. The Profile Cotton Mills have contracted for a few spinning frames to fill a small space in their No. 2 mill. No new preparatory machinery is necessary. No equipment whatever has been ordered as yet for the Verlina Mills, now owned by the Profile Cotton Mills. The Verlina plant has been dismantled and is idle, and no plan has been made for its equipment.

WEIMAR BROS. MANUFACTURERS OF Cotton Mercerized Tapes

SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES

Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.

The Whitest Light
Makes the Lightest Light

Give the Daylight An Opportunity

Let the walls and ceilings of your plant reflect light. You will feel the difference in your lighting bills and in the efficiency of your employes.

Glidden's

DAY LITE

Mill White

will transform even a gloomy mill to a light one. Be sure to use *Glidden's Day-Lite Mill White* It stays white. It will not crack nor scale. It brushes easily and has wonderful covering capacity. Write for full information.

The Glidden Varnish Co.
Cleveland, Ohio

Factories: Cleveland, Ohio Toronto, Canada
Branch Warehouses: New York Chicago
London

MILL NEWS

Rhode Island, Pawtucket. Part of the plant of the Pawtucket Hosiery Company has been running overtime lately in order to keep up with the business.

*Tennessee, Knoxville. The Knoxville Glove Mfg. Company, recently reported incorporated, will make Canton flannel gloves and a plant of 30 machines is being established at 819 McGhee St. They are figuring on knitting their own tubing for wrists, if it can be done profitably, and a knitting department may be equipped. E. S. Lotspeich is president, treasurer and buyer.

*Wisconsin, Wausau. There is nothing definite in the matter of the knitting mill project being promoted by the Wausau Advancement Association.

California, Berkeley. The name of the California Knitting Company has been charged to the College Knitting Company. This is a small concern manufacturing sweaters, sweater coats and infants' sets on ten knitting machines and ten sewing machines. Carl Gunzel and William R. Heber are the proprietors.

*Canada, New Brunswick, St. John. J. W. Willis and associates expect to start a new woolen yarn and knitting mill in St. John during the summer. Mr. Willis is a manufacturer of woolen yarns and stockinet at Golden Grove, N. B., operating two sets of cards, five looms and five knitting machines.

*Canada, Ontario, Toronto. Allen Bros. Company, a new concern which established an infants' hosiery mill at 813 Gerrard St., E., several months ago, now has 12 knitting machines making infants' cashmere hosiery, silk heel and toe, operating by electric power. The product is sold by Richard L. Baker & Company of Toronto.

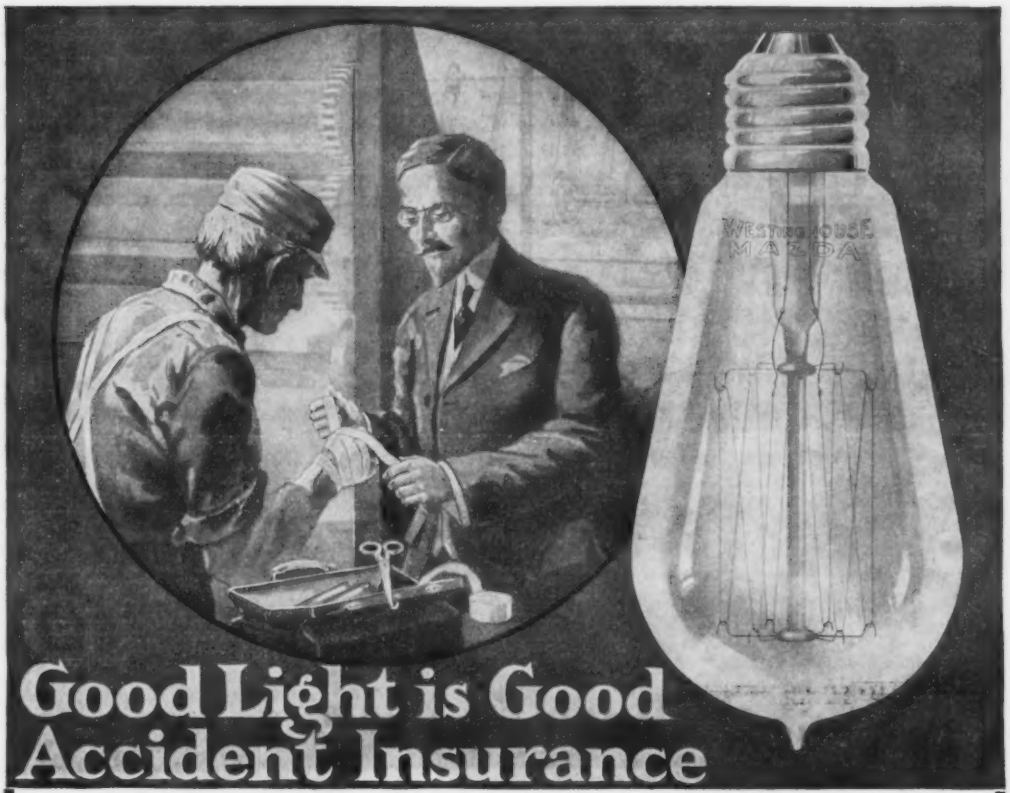
Canada, Ontario, Toronto. The Dominion Knitting Mills is the name of the new knitting factory operated by Morris Liss and Julius Seltzer.

Illinois, Chicago. A charter has been granted Kahn Bros. Company with capital stock of $225,000 to manufacture and deal in hosiery, sweaters and other goods. The incorporators are Louis Kahn, Harry Kahn and Jacob Wolbach. Kahn Bros. Company are manufacturers and dealers in men's furnishings.

Michigan, Bay City. A new location has not been decided upon as yet by the Amonica Knitting Works. They are considering various cities and expect to reach a decision in regard to a new location within a few weeks.

New Jersey, Red Bank. Sigmund Eisner is operating 14 knitting machines and 20 sewing machines on military sweaters from 2/20s worsted yarns, operating by electric power. Mr. Eisner has been engaged in the manufacture of uniforms.

New York, Brooklyn. A company has been organized under the name of the New Fashion Knitting Company with capital stock of $3,000 to manufacture knit goods. Sebastian Karp, 523 E. 150th St., Julius Halperin, 351 Saratoga Ave., Brooklyn, and others are interested.



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A large percentage of the accidents that occur in industrial plants every year could be prevented by more and better light.

Good light is the cheapest kind of accident insurance.

Westinghouse Mazda Lamps

will not only give you the kind of light that will help to prevent accidents, but they will give you that light for less cost than old style carbon or metallized lamps.

Our engineers can help you lay out an efficient lighting system. Send for our booklet on factory lighting.

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Factories, Bloomfield, N. J. New York, N. Y.
Offices throughout the country

MERCERIZED YARNS

DYERS, BLEACHERS, GASSERS

Dyers of Colors Fast to

SUN AND BLEACHING

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Manufacturing Company

CHESTER, PA.

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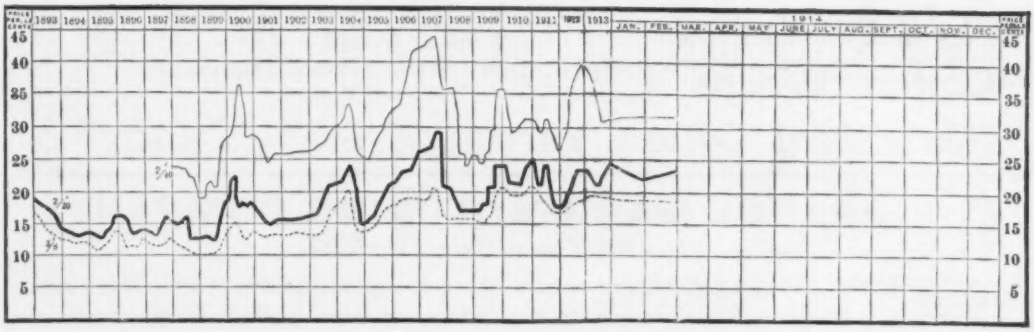
Yarn Department



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE

THE COTTON YARN MARKET

The demand for cotton yarns during the latter part of February and the early part of this month has been good. Spinners continue to hold very firm on their prices and apparently there are very few, if any, sizes accumulating. The month of March begins with prices about the same as a month ago.

Tape and Turkish towel manufacturers are very busy, but upholstery and carpet manufacturers are running rather slow at this time, while dress goods manufacturers are actively employed. The men's wear trade in some lines is good, but in others is rather slow.

Manufacturers are not inclined to buy their yarns far ahead under existing market conditions, but at the same time they are not hesitating to cover their wants for the next six weeks. Just now there is considerable difficulty in obtaining yarns made from white cotton. Some spinners are reported as asking a premium of from one to two cents per pound for the guaranteeing of absolutely white cotton.

There is a good demand for all staple numbers, with enough yarn on hand to meet all the wants of the trade. There seems little doubt but what any increasing demand will have a tendency to increase prices.

Eastern Cops

6s	20¼
8s	20¼
10s	22¾
14s	23¾
16s	24¼
18s	24¾
20s	25¼
22s	25¾
24s	26¼
26s	26¾
30s	27¾
34s	30
36s	31
40s	32½

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1½c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler

12s	24
14s	24½
18s	25½
20s	26
24s	27½
26s	28½
30s	29½
36s	37
40s	39
45s	43
50s	46
55s	47½
60s	52½

Eastern Two-Ply Warps, Carded Peeler

2/30s	30
2/36s	37
2/40s	39
2/45s	43
2/50s	46
2/60s	54

THE PHILADELPHIA MARKET

7s and coarser	20½
8s and 9s	20¾
10s	21
12s	21½
14s	22-22½
16s	22½-23
18s	23½
20s	24
22s	24½

THE J. R. MONTGOMERY CO.

Windsor Locks, - Conn.

MANUFACTURERS OF

Novelty Yarns Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

Cotton Warps on Beams, Jack Spools, Tubes and Cones. In Fancy Twist, Colors and Printed.

Mercerized Cotton Yarns Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

ARABOL MANUFACTURING COMPANY,

100 William Street New York.

Sizing, Stiffening, Softening and Finishing Compounds, Glues, Gums, Dextrines, Starches, China Clay, Bone Size and Grease, Soap, Tallow, Weighteners.

EVERYTHING IN SIZINGS, Etc. SAMPLES MATCHED. HIGH GRADE GOODS.

MONUMENT MILLS, HOUSATONIC, MASS.

HIGH GRADE COTTON YARNS White, Colors, Bleached

On Beams, Jack-Spools, Cones, Skeins and Chain Warps

FAST-BLACKS & COLORS | For Woolen Mills a Specialty | WE SELL DIRECT

C. MOORE & CO.

Manufacturers of

Twines, Threads and Yarns

Jacquard Harness Twines of all kinds on hand and made to order

S. W. Cor. Fifth and Market Sts., Phila.

JOHN F. STREET & CO.

Cotton Yarns

PROVIDENCE, R. I.

Providence, Chicago, Philadelphia, New York

JAMES E. MITCHELL CO.

COMMISSION MERCHANTS

COTTON YARNS

122-124 Chestnut Street, - - - Philadelphia, Pa.
Brown Building, 185 Summer Street, - Boston, Mass.

LUDWIG LITTAUER

YARNS

Tram, THROWN SILK, Organzine.
ARTIFICIAL OR WOOD SILK.

Plain, Gassed, Mercerized, Prepared and other Cotton Yarns. Polished and Glazed Threads and Yarns. Mohair and Worsted, Tinsel and Turkey Red Yarns.

Best Quality Harness Twine

109 GREENE STREET, NEW YORK
Silk Throwing Mills BOONVILLE and YONKERS, N. Y.

YARNS

ADVANCED TEXTILE DESIGN

By WM. WATSON.

A reprint of numerous articles which have appeared in various textile publications covering special fabrics, double and treble cloths, extra warp and filling figuring, jacquard designing, tapestry and upholstery fabrics, warp and filling pile fabrics, etc. Valuable information conveniently arranged for reference.

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ALSO Jacquard Cards AND Specialties

THE MERWIN PAPER COMPANY

MILLS: RAINBOW, CONN.—HARTFORD, CONN.

24s	25½
26s	26
30s	27
40s	33
50s	39

Southern high grade mule yarns:—

Cones

10s	23
12s	23½
14s	24
16s	24½
18s	25
20s and 22s	26
24s	26½

Southern frame yarn, lower grades:—

6s and 8s	20½
10s	20½

Eastern cones (high grade quality):—

10s	24
12s	24½
14s	25
16s	25¾
18s	26¼
20s and 22s	26¾-27¼

Skein yarn (mostly Southern):—

4s and 8s soft	20½
10s and 12s	21-21½
14s and 20s	22-23½
22s	24
10/2	21
16/2	21½
20/2	23½
30/2	26½
40/2	31½
8/2	21
7/6	21

Southern warps:—

10/1	21
14/1	22
16/1	22½
20/1	23½
22/1	24½
26/1	25½
30/1	26½
8/2	21
12/2	22
14/2	22½
16/2	23
20/2	24
26/2	25½
30/2	27
40/2	32
50/2	38

MILL NEWS

New York, Brooklyn. A charter has been granted F. M. Henkin Co., Inc., to manufacture women's and children's knit goods with capital stock of $1,000. The incorporators are Gussie and Wolf Natelson, 769 Willoughby Ave., and Frank Henkin, 157 Riverside Ave., Brooklyn.

Pennsylvania, Columbia. A number of prominent residents recently held a meeting for the purpose of discussing plans for the establishment of a hosiery mill in Columbia. It is proposed to build a 1-story mill, 32 by 64 feet, and about $2.000 was raised toward the project. The promoters are trying to secure subscriptions for $8,000.

Pennsylvania, Orwigsburg. It is reported that a Mr. Ditzler, formerly connected with the Valley Knitting Mills, Pottsville, will start up a plant here for the manufacture of women's cotton underwear.

Pennsylvania, Philadelphia. R. Keiva Friedman, co-partner with William Gordin, trading as the Modern Knitting Mills, has retired from the firm. All firm obligations are assumed by Mr. Gordin and all firm liabilities are likewise assumed by him.

P&B
RAMIE YARNS
In all numbers for
Knitting, Weaving and Laces
Manufacturers
Erste Deutsche Ramie Gesellschaft
Emmendingen, Germany
Sole Agents
PFALTZ & BAUER, Inc.
Importers
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GOLD STAMPS
SKETCHES AND SAMPLES ON REQUEST
MEYERCORD CO. PHILADELPHIA & CHICAGO.

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Acme Print Co., Reading, Pa.

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Bleaching, Fulling and Scouring SOAPS
Red Oil and Olive Oil Crown Soaps
J. O. Draper Co. Est. 1860 Pawtucket, R. I.

S. T. Crocker, Pres. W. F. Stiles, Treas.

ORSWELL MILLS
FITCHBURG, MASS.
Capacity, 45,000 Spindles.
HIGH GRADE YARNS
From Egyptian and Peeler Cotton, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted.

JENCKES SPINNING COMPANY
PAWTUCKET, RHODE ISLAND
COTTON YARNS
CARDED and COMBED, in Nos. 10 to 120, from PEELER EGYPTIAN and SEA ISLAND COTTONS.
MERCERIZED YARNS, IN SINGLE OR PLY, A SPECIALTY

Industrial Tape Mills Co.
Jasper and Huntingdon Sts. Phila., Pa.
Manufacturers of
NARROW FABRICS
SPOOL TAPES. STAY BINDINGS AND BRAIDS
Also Sole Manufacturers of
SAXON
New Guaranteed Non-Shrinkable Tape

Reels for Cotton WOOLEN AND WORSTED
Patented Hosiery Winders, Cop Winders and Spoolers.
LINDSAY, HYDE & CO.,
2124 to 2130 East York St., PHILADELPHIA, PA.

Knitting and Weaving YARNS
Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment
EDWARD S. HYDE
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Philadelphia, Pa.

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MANUFACTURERS OF
Fringes, Tapes, Bindings & Narrow Fabrics
Office and Factory: WAYNE AVE. and BRISTOL ST.
PHILADELPHIA

Fred Sternberg & Co.
530 BROADWAY, NEW YORK
MERCERIZED
GLAZED
GASSED
COTTON YARNS

The Bradley Stencil Machine
Makes stencils in half a minute, at reduced cost of 1-10 cent each. Write for catalogue and price list.

In universal use by thousands of manufacturers and shippers.
Also manufacturers of Oil Stencil Board. Write for prices and samples.
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HUGHES FAWCETT
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Linen Weaving and Knitting Yarns
Linen Jacquard Harness Twines
And Linen Yarns and Threads for every purpose
Turkey Red Yarns
LARGE STOCK PROMPT DELIVERIES

LINDSAY THOMPSON & CO., LTD.
FLAX SPINNERS BELFAST, IRELAND
Linen Weaving and Knitting Yarns
LINEN THREADS OF EVERY DESCRIPTION
T. J. PORTER & SONS Large Stocks
Selling Agents, Philadelphia Quick Delivery

THE RAMIE AGENCY **RAMIE THREADS AND YARNS**
Manufacturers' Agents
Ramie Slivers and Rovings *Ramie Gas Mantle Threads, and Everything in Ramie*
45 EAST 17TH STREET, NEW YORK

THE LINEN YARN MARKET

Reports from Belfast have it that yarns have not been in much demand recently. There are but small stocks in the spinners' hands and such yarns as are being bought by the manufacturers as a rule have to be made to order. This position appears to be caused by the fact that spinners have decided to go on short time with the object of curtailing production and maintaining present prices. The prices recently obtained for wefts is so much above normal that it is generally agreed that if there is not something done in the way of curtailing production prices must drop. As this is a much easier process of maintaining or holding up prices, the Flax Spinners' Association are trying to maintain prices and strengthen their position in the market. Inquiries from manufacturers are receiving the special attention of spinners and in every instance there is a very favorable market for manufacturers to procure reasonable and cheap lots of yarns. As manufacturers do not see a very bright outlook for their linen goods, it is anticipated that unless spring orders come along briskly we are about to see lower prices in linens and consequently a further drop in the linen market.

The local linen market is very unsatisfactory, presumably owing to the unsatisfactory cotton situation, which along certain lines has always influenced the linen market in this country.

("A" Quality)

35s Lea on cones	83
50s Lea on cones	88
60s Lea on cones	93
80s Lea on cones	98
90s Lea on cones	1.08
100s Lea on cones	1.13
110s Lea on cones	1.28
120s Lea on cones	1.48

MILL NEWS.

*New York, Owego. A decision has not been reached by Julius Kayser & Co. in regard to the matter of establishing a silk and ribbed underwear plant in the branch glove factory at Owego. The main plant and office of Julius Kayser & Company is at 220-58 Taaffe Place, Brooklyn, N. Y.

New York, Mechanicsville. An increase has been made in the capital stock of the Mechanicsville Knitting Company from $50,000 to $100,000.

New York, Kingston. The Kingston Knitting Mill has been taken over and is being operated by the Ulster Knitting Mills Company. Lines of bathing suits, boys' unions, boys' jerseys, children's wrappers, etc., are being manufactured from 10s, 12s and 22s Peeler yarns on cones. The plant contains 45 knitting machines and 54 sewing machines, a piece dyeing department, and steam and electric power equipment. E. Dudley Shafer is superintendent and buyer.

New York, New York City. The business of Strassner & Bettman, 26 Sullivan St., operating under the name of the Atlantic Knitting Mills, has been incorporated under the style of the Atlantic Knitting Mills, Inc., with capital stock of $25,000. Max Strassner has been elected president, and Jesse W. Bettman, treasurer. Fifty knitting machines and 40 sewing machines are operated on sweaters, golf vests and similar goods.

New York, New York City. The Reinforced Cravat Corporation has been organized to manufacture knitted neckwear, hosiery and underwear, by Harry J. Sondheim and others.

New York, New York City. Levy-Steifel Co., Inc., manufacturers of sweaters, coats, bathing suits, and similar goods, with a plant at Glendale, will change the style of the corporation to the Columbia Knitting Mills. The office is at 462-64 Broadway.

New York, Port Jarvis. A charter has been granted W. B. Chant & Son, Inc., with capital stock of $60,000 to manufacture silk and fabric gloves. Recently extensive enlargements and improvements have been made in the plant.

New York, Poughkeepsie. It is reported that F. Radcliffe Williams has bought the Queen City Knitting Mills from M. Shwartz and will continue the plant in operation. The plant was first established by A. Stein and was sold by him to M. Shwartz. Full fashioned sweater coats are manufactured on eight knitting and seven sewing machines.

New York, Saratoga Springs. E. R. Olmsted and J. N. Huyck, proprietors of the Olmsted Mfg. Company, will incorporate the business in a few months. Fancy knit slippers, caps and toques are manufactured.

North Carolina, Forest City. Wilkie & Tanner are successors to the Dixie Knitting Mills. The new company is composed of C. A. Wilkie and K. S. Tanner. Mr. Wilkie continues as manager.

North Carolina, Halifax. Archie McDowell of the Scotland Neck (N. C.), Cotton Mills, is promoting the organization of a hosiery mill to be located in Halifax, and operated by colored female labor. A building erected about two years ago for a shingle mill which is suitable for hosiery manufacturing has been secured.

Oklahoma, Lawton. The project to establish a knitting plant here under the name of the Lawton Knitting Mill Company has been dropped as the promised bonus was not raised by the Chamber of Commerce.

*Pennsylvania, Allentown. The plant formerly operated by Hildebrandt & Ossenbach is now known as the Hildebrandt Hosiery Mill, H. Hildebrandt, proprietor, Mr. Ossenbach having withdrawn as noted in a recent report. Twenty knitters and six ribbers are operated on 200-needle half hose.

Pennsylvania, Allentown. C. G. and G. W. Smith, 314 N. Church St., are operating four heads, round frames, and five winders on astrachans and silk linings, and backwinding for the trade. Messrs. Smith are also interested in a plant at Alburtis where they are making a line of silk fabrics.

BOSTON MASS. BRADFORD ENG.
RICHARDS, ATKINSON & HASERICK
IMPORTERS
TEXTILE MACHINERY
MILL SUPPLIES
EGYPTIAN COTTON
PHILADELPHIA OFFICE "THE ARCADE"

A. G. THURSTON & SON
Manufacturers of
Fluted Rolls, Pressers for Flyers
AND GENERAL MACHINERY
Specialties made of Renecking, Refluting, Filing and Honing of all kinds of Rolls. Flyers Repaired and Fitted with any desired Style of Pressers, Spindles Straightened, Restepped and Retopped.
BOX 528, FALL RIVER, MASS.

Lowell Crayons Meet the requirements of any cotton, woolen or worsted mill.
May we send samples? 15 colors and white
LOWELL CRAYON CO. Original Manufacturers LOWELL, MASS.
TRADE MARK ON EVERY BOX

OTTO KUNZE
2727 Myrtle Ave., BROOKLYN, N. Y.
Our Specialty: Fibre Covered Shuttles
Of Every Description
Samples sent on application

Established 1796

Special shaped carbon, black diamond, pointed tools for turning paper, rag, corn husk and cotton calender rolls, hard rubber, fibre, etc. Manufactured by
Thos. L. Dickinson, Successor to John Dickinson, 64 Nassau St. New York City

Established 1844.
BENJ. BUCKLEY'S SON,
(WM. J. BUCKLEY) *Gun Mill, Patterson, N. J.*
Manufacturer of all kinds of SPINDLES, FLYERS, RINGS, TUBES, CAPS, etc., for Cotton, Silk, Flax, Woolen and Worsted Machinery.
Roving Spindles and Flyers a Specialty. Light Forgings.
REPAIRING OF ALL KINDS.

Elliot Cloth Folder and Measurer
FOR PRINT WORKS GINGHAM AND COTTON MILLS BLEACHERIES' ETC., ETC'
Send for circular.
Manufactured by
ELLIOTT & HALL, 51½ Hermon St., Worcester, Mass.

MILL NEWS

Pennsylvania, Mauch Chunk. The Mauch Chunk Silk Company is operating night and day. A business of commission silk throwing is carried on.

Pennsylvania, Philadelphia. The Tomalino Silk Dyeing Co., 4356 N. Gratz St., Wayne Junction, with Felix Tomalino as proprietor, are dyeing natural and artificial skein silks with a capacity of 500 pounds per day. There is a probability that the plant will be removed to another location if larger quarters can be secured.

*Pennsylvania, Plymouth. The business of M. J. Atwood Company has been incorporated under the style of the Atwood Silk Company with capital stock of $100,000. As noted in recent reports the plant is to be greatly enlarged. There will be no change in the management.

Pennsylvania, Philadelphia. A charter is about to be asked for the International Flax Mills, with John H. and William N. Morice, both connected with the Philadelphia Bag Co., located at Water and Tasker Sts., as incorporators.

Pennsylvania, Philadelphia. The plants of Charles H. Feldstein & Co., Inc., at 4204 Pearl St., Frankford, and at Howard St. and Lehigh Ave., have been consolidated at 1839 E. Madison Ave., Kensington. This company manufactures hair cloths operating 100 looms.

Pennsylvania, Reading. The Haledon Throwing Company of Paterson has taken over the equipment of 20,000 spindles formerly operated by the Berkshire Silk Company at 11th and Marion Sts. and is operating it as a branch mill with D. G. Fisher as superintendent.

Pennsylvania, Reading. Two hundred looms are being operated on plain and fancy broad silks by the Lion Silk Co., 11th and Marion Sts. H. I. Felberman, who also operates plants in Allentown and Paterson, N. J., is proprietor. The main office is at 111 5th Ave., N. Y. M. Iaron is superintendent.

Rhode Island, Arctic. The Arctic Centre Business men's Association is looking for a location for a new silk mill to employ about 200 hands. The names of those behind the new project are being withheld until plans take a more definite shape.

Rhode Island, Central Falls. According to report, J. S. and W. E. Meehan, broad silk manufacturers of Pawtucket, have leased manufacturing space in Central Falls and will remove their machinery here and begin manufacturing in the course of the next few weeks.

F. C. BARTON
65 Worth Street, New York
MANUFACTURERS OF
"LILY" BRAND NARROW FABRICS
WEB, TAPE, BINDINGS, ETC.

THE BIAS NARROW FABRIC CO.
F. C. BARTON, President
65 Worth Street, New York
Bias and Straight Cut Fabrics and Ribbons.
Embossing and Cutting Customers Own Goods a Specialty.

MILL NEWS

Rhode Island, Cranston. The Cranston Worsted Mills have begun working four nights a week and this schedule will continue indefinitely, according to statements credited to the management.

Rhode Island, Harrisville. To avoid threatened trouble with the weavers of the night shift, the management of the Stillwater Worsted Company has suspended night work for an indefinite period.

Rhode Island, Mapleville. The Coronet Worsted Company is operating overtime three nights a week and this schedule has been in force for some time. Worsted suitings are manufactured.

Rhode Island, Pascoag. At the local woolen mills more machinery is in operation than for several weeks and practically full production is being obtained. In the plant of A. L. Sayles & Sons, the finishing department has been operated overtime several nights. The pattern weaving room of F. L. Sayles Company is running overtime.

Rhode Island, Pawtucket. The Ervma Weaving Company is manufacturing ladies' dress goods and novelty yarn at 30 Bayley St., operating 1,400 cotton spindles and 16 looms. G. C. Anderton is treasurer and buyer, and Joseph McGowan is superintendent.

Rhode Island, Pawtucket. It is understood locally that negotiations are in progress for a lease of the Cadoza Lace Company's plant. The plan outlined is said to include a guarantee of dividends on the preferred stock of the company.

Rhode Island, Providence. A corporation has been organized under the name of the Universal Lace Company with capital stock of $250,000, classified as $150,000 common, and $100,000 preferred. The incorporators are G. Galen Wheeler, John E. Dudson, and Claude C. Ball.

Rhode Island, Warren. The bursting of a tube in the boiler room of the Cutler Mills caused the shutting down of the plant. Water leaked through the floor into the card room, causing considerable damage to stock and machinery.

South Carolina, Clinton. The Lydia Cotton Mills state the current reports that they are considering plans for an enlargement are incorrect.

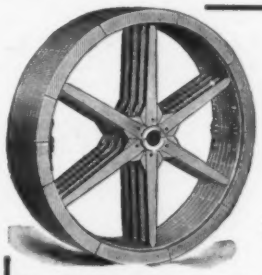
South Carolina, Greenville. Lawrence S. Holt, Jr., of Burlington, N. C., trustee for the Union Cotton Bagging Corp., which is now in liquidation, advises that all the plants of the Union Cotton Bagging Corp. are for sale. The new company recently organized here under the name of the Greenville Bagging Company, which it is reported has leased for a term of years a large 3-story warehouse owned by the C. & W. C. Ry., has no connection with the Union Cotton Bagging Corp.

South Carolina, Langley. The following officers have been elected by the Langley Mfg. Co., of this place, the Seminole Mfg. Company, Clearwater, and the Aiken Mfg. Co., of Bath: Thomas Barrett, Jr., Augusta, Ga., president; George E. Spofford, vice-president; George E. Leonard, treasurer, and Charles H. Low, secretary. The mills are to be changed over to finer lines of goods.

BANDING
CANNOT BE TOO GOOD

Often it is "Too Bad"—in more ways than one—as a certain spinner remarked after taking a chance with some clothesline miscalled banding. He has gone back to **Lambeth** for keeps. No more chances for him. Final cost is the real test of economy.

Lambeth Rope Corporation
NEW BEDFORD, MASS.



Gilbert Wood Split Pulleys

SAGINAW Manufacturing Company
Saginaw, Mich., U. S. A.

New York Branch, 88 Warren Street
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Sales Agencies in all the Principal Cities
Cable Address: Engrave A B C and Lieber's Code

DIXON'S
GRAPHITE PIPE JOINT COMPOUND

Send for Booklet No. 120. "Pipe Joint Compound."

Made in JERSEY CITY, N. J. by the
JOSEPH DIXON CRUCIBLE COMPANY

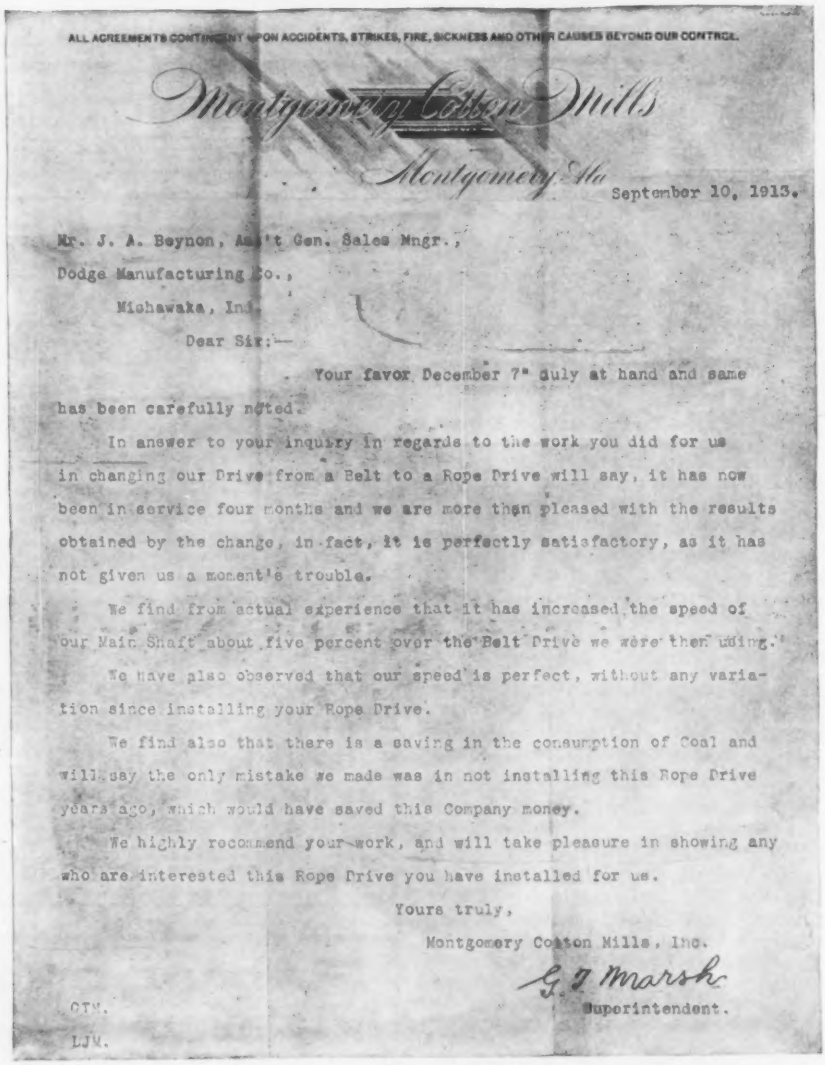
PROVIDENCE MENDING CO.

Burlers, Speckers and Menders of Textile Fabrics

2600 North Sixth St. Bell Phone, Diamond 628
PHILADELPHIA, PA.

DODGE

This Is The Strongest Bid We Can Make For Your Business—Value Received



ALL AGREEMENTS CONTINGENT UPON ACCIDENTS, STRIKES, FIRE, SICKNESS AND OTHER CAUSES BEYOND OUR CONTROL.

Montgomery Cotton Mills

Montgomery Ala. September 10, 1913.

Mr. J. A. Beynon, Ass't Gen. Sales Mngr.,
Dodge Manufacturing Co.,
Mishawaka, Ind.

Dear Sir:—

Your favor December 7th duly at hand and same has been carefully noted.

In answer to your inquiry in regards to the work you did for us in changing our Drive from a Belt to a Rope Drive will say, it has now been in service four months and we are more than pleased with the results obtained by the change, in fact, it is perfectly satisfactory, as it has not given us a moment's trouble.

We find from actual experience that it has increased the speed of our Main Shaft about five percent over the Belt Drive we were then using.

We have also observed that our speed is perfect, without any variation since installing your Rope Drive.

We find also that there is a saving in the consumption of Coal and will say the only mistake we made was in not installing this Rope Drive years ago, which would have saved this Company money.

We highly recommend your work, and will take pleasure in showing any who are interested this Rope Drive you have installed for us.

Yours truly,
Montgomery Cotton Mills, Inc.
G. T. Marsh
Superintendent.

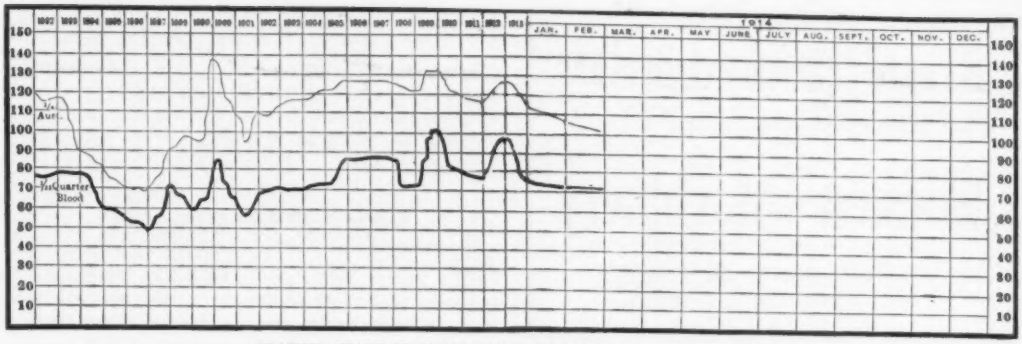
GTM.
LJM.

Estimates on Complete Transmission Equipments for Textile Mills Cheerfully Furnished Free of Obligation

Dodge Manufacturing Company

Offices and Works: - MISHAWAKA, INDIANA

PHILADELPHIA	BOSTON	CINCINNATI	ATLANTA	PITTSBURGH
815 Arch St.	139 Purchase St.	128 W. Third St.	28 S. Forsyth St.	337 Second Ave.
CHICAGO	NEW YORK	MINNEAPOLIS	ST. LOUIS	PORTLAND, ORE.
214 So. Clinton St.	21 Murray St.	100 N. Third St.	408 N. Fourth St.	14th and Lovejoy Sts.



GRAPHIC CHART SHOWING RANGE IN PRICE OF WORSTED YARN.

WOOLEN AND WORSTED YARN MARKETS

Spinners report a fair amount of business on hand, but are not inclined to take orders for large quantities at today's prices, which have advanced anywhere from 2 to 8 and 10 cents per pound. Some immediate business is being placed for 2/40s half bloods at prices ranging from 90 to 92 1/2 cents per pound; 2/50s fine stock at $1.00 to $1.05 from the men's wear trade and 2/36s high 3/8 at anywhere from 80 to 85 cents from the dress goods mills. Regarding prices spinners state that they fear they will go much higher rather than lower before the season ends.

Men's wear manufacturers report a reasonable amount of business on their books with the result that they want to buy yarns, but at their own prices, and are not willing to place orders at prices being asked today. The spinners feel, however, that it is only a question of a short time before they will have to buy if they want to cover their wants at reasonable figures.

The dress goods trade is in pretty good shape. They are not only ready to make offers, but to buy yarns, but, of course, like the men's wear trade, at cents below present prices and are willing to buy in reasonably large quantities if their offers are met, but not to place contracts.

The sweater trade is slow, due to the trade asking for the medium and lower grades of goods.

BRADFORD SPUN YARN

2/16 Ingrain (black)	54
2/16 Ingrain (light grey)	55
2/16 Ingrain (white)	56
2/12 to 2/16 low common	60-62½
2/20 to 2/24 low 1/4	62½-65
2/20 to 2/25 1/4 blood	67½-70
2/26 to 2/28 1/4 blood	70-72½
2/32 1/4 blood	70
2/20 3/8 blood	70-72½
2/26 3/8 blood	72½-75
2/32 3/8 blood	75-77½
2/36 3/8 blood	80-85
2/40 1/2 blood	90-92½
2/40 delaine	95-1.00
2/50 delaine	1.00-1.02
2/40 Australian	1.00
2/50 Australian	1.10-1.12½
2/60 Australian	1.17½-1.20
3/30 and 3/32 luster	95-97½
3/36 luster	1.10-1.12½

FRENCH SPUN MERINO YARNS—FINE ONE-HALF BLOODS

Standard Grade

1/20 50/50 White Merino Cop	65
1/30 50/50 White Merino Cop	67
1/40 50/50 White Merino Cop	70
1/20 60/40 White Merino Cop	68½
1/30 60/40 White Merino Cop	70½
1/40 60/40 White Merino Cop	73½
1/20 70/30 White Merino Cop	71½
1/30 70/30 White Merino Cop	73½
1/40 70/30 White Merino Cop	77
1/20 80/20 White Merino Cop	74
1/30 80/20 White Merino Cop	76
1/40 80/20 White Merino Cop	78
Sliver and Sanitary Mixes	3c. more
Coning on 1/20	2c. more
Coning on 1/30	3c. more
Coning on 1/40	4c. more

FRENCH SPUN YARN

1/20 1/4 blood	67½
1/20 high 1/4	70
1/20 3/8	75
1/20 high 3/8	76-78
1/20 1/2 blood	81½
1/30 1/2 blood	85
1/40 1/2 blood	87½
1/50 delaine	1.00-1.02½
1/40 Australian	95-97½
1/50 Australian	1.02-1.05
1/60 Australian	1.10
1/70 Australian	1.15-1.20

For two ply knitting twist add 5c. additional to above prices.

For two ply weaving yarns add 7 1/2c. additional to above prices.

Missouri. Webb City. R. P. Paulsen is reported to be planning to establish a knitting mill here.

Edward Jefferson & Brother
SPECIALISTS IN
Worsted Machinery
117-123 South 2d Street
PHILADELPHIA, PENNA.

William Whitman Co.
COMMISSION MERCHANTS
COTTON and WORSTED YARNS
BOSTON NEW YORK PHILA. CHICAGO CHARLOTTE

JAMES LEES & SONS CO.
MINERVA MILLS
Spinners of WORSTED YARNS
For Weaving and Knitting
In the Grey and in all colors and mixtures
Philadelphia Office: 627-29 Bourse Bldg.
Mills and Office: Bridgeport, Montgomery Co., Pa.

J. B. Jamieson
77 Summer St., Boston
Imported Worsted Yarns
For Knit Goods, Men's Wear and Dress Goods

Woolen and Merino
YARNS
Eaton Rapids Woolen Mills
EATON RAPIDS, MICHIGAN

EMPIRE
MILL
CRAYONS
"BEST BY TEST"
THE AMERICAN CRAYON CO.
Waltham, Mass. and Sandusky, Ohio

KNITTING YARNS

Dyed and Bleached—Bradford System

2/7s straight 1/4 blood	72½-75
2 and 3 ply 10s-15s straight 1/4 blood	75-77½
2 and 3 ply 16s-20s straight 1/4 blood	75-77½
2 and 3 ply 20s-24s straight 1/4 blood	77½-80
2 and 3 ply 24s-28s straight 1/4 blood	80-82½

WOOLEN AND MERINO YARNS

Spinners report plenty of contracts on hand for yarns, but complain that delivery specifications are slow in coming in and, as a consequence, they hesitate to make up much yarns in advance until definite shipping instructions have been received.

Prices are very firm, with a tendency to advance still further, due to the fact that raw stock used by this trade is rather scarce at this time and continually advancing.

Sweater manufacturers are reported as having booked a fair amount of business, especially for the low and medium grade of goods. Knitters of the higher grades have not been so fortunate in their sales and business with them is slow. On account of the tendency of the market to advance, some of the knitters have come into the market to cover their requirements for the next few months with the result that some large orders have been placed. The present outlook of the market is not very good for a big business.

WOOLEN AND MERINO YARNS

2/20 Light Grey Mixed	80%	20%	52-55
2/20 Light Grey Mixed	90%	10%	57½-60
2/20 Light Grey All Wool			62½
2/20 Colored All Wool			60
2/20 Bleached	80%	20%	62½-65
2/20 Bleached	90%	10%	67½-70
2/20 Bleached All Wool			70-72½
2/23 Colored All Wool			62½-65
2/23 Bleached 90/10			67½-70
2/23 Bleached All Wool			72½-75
2/25 Light Grey Mixed All Wool			80-82½
2/25 Bleached All Wool			85-87½

THE RAG AND SHODDY MARKET

There has recently been a slight increase in the demand for desirable grades of rags, but the dullness of trade in the woolen mills running on low grade goods has prevented anything approaching a pronounced advance in prices. Dealers fortunate enough to have on hand grades of stock that are in short supply have been able to obtain advances, but these cases are exceptional and as a rule the market is in practically the same position as regards prices as at the time of our last report. The low grade woolen mills are fairly busy, but the orders for goods has not covered the production for any great length of time, consequently

spinners are not contracting for raw material, nor are they inclined to buy stock in anticipation of future needs. There is but slight demand for wool waste and stocks are small. The bulk of the business has been on light colors and higher grades of material. The cotton waste trade is dull, there being but little demand at present prices. We quote as follows:

SHODDIES AND EXTRACTS

White yarn, best all wool	46-49
White knit, all wool, best fine	30-40
White, knit, No. 2	23-30
Light yarn, extra fine	35-36
New pure indigo blue	24-27

Merino

Fine light, all wool	20-22
Medium light, all wool	19
Fine black, all wool	17-19
Fine dark, all wool, best grade	18-20
Medium dark, all wool, No. 2	13½-15½
Red knit stock, strictly all wool	20-24
Red flannel, all wool	19-22
Dark blue for hosiery, strictly all wool, No. 1	20-22
Dark blue for hosiery, not all wool, No. 2	13-15

NEW WOOLEN RAGS

Fine merchant tailors	6-8
Choice light colors	7-8
Browns	12
Blacks	6
Blues	9
Fine dark	7½-12
Medium dark	4-5½

Serges

Black	9
Blue	10-11

Flannels

Very light	17-18
Mixed	10-11
Black	6-7½

SOFTS AND KNIT STOCK

Soft woolens, best	5½-6½
Old white flannels	11-14
Old red flannels	10-11
Old blue flannels	3-5
Old plaids	3
White stockings	20-24½
Clear dark hoods	7-8
Light hood stock	13-14

Alabama, Eufaula. It is reported the Glenola Cotton Mills will make improvements and changes in its plant and manufacture a finer grade of cloth. Shirtings and sheetings are manufactured on 5,824 ring spindles and 148 looms.

Alabama, Piedmont. Twenty-two spinning frames and eleven twisters are to be taken out of the plant of the Coosa Mfg. Company and replaced with new machinery. A recreation hall for employes of this concern is under construction.

Interruption of Production

is recognized by textile mill operators as the most costly element of repairs.

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are so liberally designed and so sturdily constructed that they will operate for years without need of repairs providing they are properly supplied with oil while in service.

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Power and Electrical Equipments

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The actual cost of the degreasing operation

By the Stabler Process

including labor, interest, depreciation, etc., is more than covered by the market value of the grease recovered.

The Stabler Process puts the wool in a lustrous, lofty condition that is ideal for manufacturing. It is made more elastic, stronger and takes dyestuff more effectively than when washed by soap and alkali

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For years our silk yarns have been considered the very best by manufacturers of silks and silk-mixture goods.

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We also make a specialty of supplying standard silk yarns to individual orders for every manufacturing purpose.

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Printing—Surface and warp printing.

WORKS:

Paterson, N. J. Dundee Lake, N. J. Allentown, Pa. Williamsport, Pa.

THE SILK MARKET

The silk market is still strong, with prices advancing. As to the limit of advance, no one at this time can safely predict. The advance in the price of the raw product can be traced to the present demand for finished goods, and the shortage of raw silk which now exists. Never in the history of the silk industry was business better, or the outlook for spring and fall seasons more hopeful.

At the present time manufacturers are using silk, bought at high prices, and are perplexed as to what prices the lines will bring. The advance in raw material alone should be reflected to the extent of at least 5 per cent. or perhaps 10 per cent. on the finished product. On this account buyers are cautious, and the volume of business is not as large as it would be under other conditions.

It is said that in the Japan market only 30,000 bales of raw silk remain, and a great deal of that is of a poor quality.

When it is considered that this amount of raw product will have to last for at least 5 months before the new crop will be ready, it is easy to predict a very strong market for some time to come.

In the Yokohama market, but 5,000 bales remain, while in Canton the market is reported weak owing to the offering of much new silk. This condition, however, will no doubt soon change, and the market become strong.

In Milan a shortage of silk exists and prices are advancing. In Lyons the silk industry was never in a more flourishing condition and manufacturers are getting ready for a good fall business. It is said that all through the silk districts of Europe a shortage of silk is felt, and it is predicted high prices will prevail as a consequence.

In this country the manufacturers are all very busy, but at present market prices are buying sparingly, no large sales of silk being reported.

The manufacturers in both broad and narrow silks report a good business. Much broad silk is being used for dresses, linings, ladies' coats, and many purposes. Ribbons of all widths are very popular in the millinery trade.

The dry goods stores report a brisk trade in silk and silk mixed goods, with a very bright outlook for a good spring and fall business. Printed crepe-de-chene with oriental effects is still popular, while moires, poplins, messalines and in fact all soft finished silks are having a great call.

Taffetas especially with moire effects look promising for fall. The ribbon manufacturers are finding it hard to keep up with their orders. It looks as though the style for ribbons would last for some time to come. The millinery trade especially are demanding both broad and narrow lines. The cotton and knitting manufacturers are

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The Latter Assuring Complete Relief to Strain on Silk

GOODS FULLY INSURED BY FIRE. PROMPT SERVICE GUARANTEED.

Raw Silk Warping a Specialty.

not buying as much of the raw product as heretofore. This can be accounted for perhaps from the fact of the high prices of the present market. It is expected that later on they will be buying large quantities of silk.

Throwsters are verv busy and are booking orders for the dull season. This condition has not existed for some time and is a very good omen for the silk industry in general.

Owing to the demand for the finished product at present existing and the many orders that are booked ahead for the fall season, manufacturers cannot look for lower prices for raw silk in the near future. In fact it is quite probable that a strong rising market will be in effect for some months to come.

Below are prices current:

European

Grand Extra Classical Piedmont 12/14	5.10-5.15
Extra Classical Italian 12/14 12/16	4.90-4.95
Classical Italian 13/15 24/26	4.75-4.80
Best No. 1 Italian 13/15 24/26	4.65-4.70

60 days' basis.

Japan

Filature Kansai Extra Extra 13/15	4.40-4.45
Filature Kansai Extra 13/15	4.30-4.35
Filature Shinshu Extra 13/15	4.25-4.30
Filature Kansai Best No. 1 13/15	4.15-4.20
Filature Kansai No. 1 13/15	4.10-4.15
Filature Shinshu 13/15	4.05-4.10
Rereels No. 1 13/16	4.10-4.15
Rereels No. 1 1/2 13/16	3.95-4.00
Rereels No. 1 1/2-2	3.95-4.00

6 months' basis.

China

Canton XXA 14/16	3.70-3.75
Canton XXB 14/16	3.60-3.65
Tsatlee Blue Dragon and Flying Horse	3.35-3.40
Tsatlee Kun Kee Mars No. 1	2.90-2.95
Tussah Filature Eight Cocoon No. 1-2	1.55-1.60

6 months' basis.

SPUN SILK

No change in the flourishing condition of this trade. The spinners report large orders ahead for their product and the outlook for an increasing demand very bright. Prices remain the same.

60/2	3.70
50/2	3.60
40/2	3.50
30/2	3.35
20/2	3.25
10/2	3.15

ARTIFICIAL SILK

The artificial silk manufacturers while not busy report a healthy growth in the demand for their product. All indications point to a good spring business, and if a resumption of the braid trade can be noted, it will stimulate the activities in the artificial silk lines. Prices remain the same as our last report.

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In Gray or Dyed.
Special attention to regularity of sizes.

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150 Deniers English A.,—Bleached	1.95
150 Deniers English B.,—Bleached	1.85
150 Deniers English C.,—Bleached	1.70
150 Deniers Elberfeld Raw	1.75
150 Deniers Chardonette Natural	1.85

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SILK MILL NEWS

Massachusetts, Turner's Falls. Frederick A. McLane, formerly superintendent of William Skinner & Sons, Holyoke, heads a new corporation known as the McLane Silk Company which will manufacture silk goods in Turner's Falls. Mr. McLane, with the cooperation of the Turner's Falls Board of Trade, the Turner's Falls Company, a hydro-electric company, and White, Weld & Company, bankers and managers of public service corporations, 111 Devonshire St., Boston, organized the new company, which will have capital stock of $75,000 and will erect a mill on Avenue A, near the Wells Bros. Forge, about 120 by 128 feet, with saw tooth roof, and necessary smaller buildings for office purposes, etc. It is expected that ground will be broken in ten days by Thomas Bros., contractors of Turner's Falls. Probably power will be supplied by the Turner's Falls Company. This is Mr. McLane's project and he will be president and general manager, the other concerns interested merely co-operating to bring the business to Turner's Falls.

New Jersey, Paterson. Paul Gerli & Company, 257 Fourth Ave., New York, have leased about 6,000 square feet of floor space in Paterson, which it is said will be utilized for silk throwing, employment being given to 200 hands.

*New York, Cortland. The Tioughnioga Silk Company, a new silk throwing concern, has equipped a plant here and is doing silk throwing in all its branches on 3,500 spindles operated by electric power. James A. Moss of the Cortland Silk Company is buyer, and John H. Brooks is superintendent.

*Pennsylvania, Tamaqua. Manufacturing will be started about March 15 by the new Pennsylvania Silk Spinning Company which has secured a building on Railroad St. The plant will contain 5,000 spindles. About 4,500 of this number will be new equipment and about 500 spindles will be brought from Slatington where they were formerly operated by the Slatington Silk Company, which was burned out several months ago. Electric power will be used. H. O. Jones, head of the old Slatington Silk Company, is president, manager and buyer of this new concern. M. E. Jones is treasurer. A specialty will be made of tram and crepe.

Connecticut, Watertown. M. Heminway & Sons Silk Company are moving the machinery from the branch mill at Waterbury to the main plant in Watertown, and a large number of workers are being added to the local force.

New Jersey, Paterson. Repairs are to be made at once by Fairhurst & Company, manufacturers of silk novelties for men's neckwear, whose plant was recently damaged by fire.

SILK MILL NEWS

*Maryland, Hagerstown. As soon as the addition to the office building and shipping department, now under construction, is completed, Cromer Bros. will add another story to one of their main buildings, 30 by 157 feet. This will be the fourth addition within a short period. Silk ribbons are manufactured on present equipment of 3,000 spindles and 42 ribbon looms, with complete dyeing and finishing department. Charles W. Cromer is manager and buyer.

Massachusetts, Pittsfield. The boiler in the plant of A. H. Rice Company, manufacturers of sewing silks and braids, has been condemned and electric motors have been installed to supply power.

*New Jersey, Paterson. It is expected the new mill of the Van Raalte Silk Company will be finished by June 1. The new machinery to be installed will be set up before the present equipment is moved from the old quarters.

*New Jersey, Paterson. Ten new looms are to be added to the plant of the Pearl Silk Company, manufacturers of crepe de chine, peu de signe and messaline, at 48 Straight St.

New Jersey, Paterson. The Universal Weaving Company has disposed of its ribbon plant to the Werbro Ribbon Mfg. Company, a new concern recently organized as noted. The Universal Company will continue to manufacture hat bands. The Werbro Ribbon Mfg. Company will move the newly purchased machinery to its plant at Fifth Ave., corner of Wait St.

New York, Astoria. T. A. Robinson, a manufacturer of broad silk novelties at Franklin and Munson Sts., anticipates getting more floor space in the mill in which he is located and will add more machinery.

*New York, Whitestone. Twelve looms have been moved from New York City by the Atlas Silk Company and installed in the new mill here and it is expected the balance of the equipment will be moved here within two weeks. The New York Watering Company is also moving its equipment from New York City to the new mill and will have completed the transfer of equipment in about two weeks. The building is practically completed with the exception of the installation of the fire sprinkler system and this work is being started.

Pennsylvania, Bangor. The Crown Silk Mfg. Co., manufacturers of silk gloves, underwear and hosiery, contemplate adding more machinery in the near future.

*Pennsylvania, Bangor. The Sterling Silk Glove Company have completed their new 3-story addition and are placing the machinery. The knit fabric looms are now being imported from England and the preparatory machinery is of American make.

*Pennsylvania, Catasauqua. New looms were recently ordered by the Catasauqua Silk Company and will be installed within a few weeks. The plant is very busy on plain and fancy broad silks.

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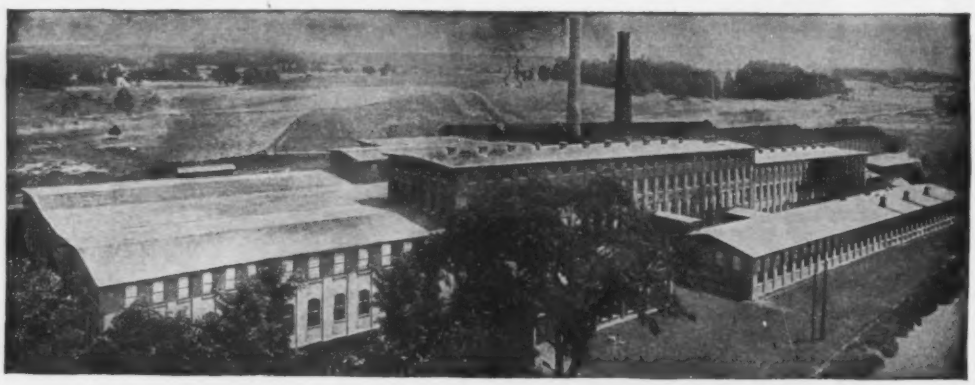

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Copperas	65-80
Oxalic	7-8
Sulphuric, 66°, 100 lbs.	1.00-1.25
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Tartaric crystals	30-33

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Alum, lump	1.75-1.90
ground	1.85-2.00
powdered	3.00-3.15
Aqua ammonia, 26°	2-5
Borax	3-5
Cream tartar, crystals	23-25
Fuller's earth, powdered, ton	18-20
Glauber's salt	75-85
Potash, chlorate, crystals	8½-9½
powdered	9-14½
carbonate	3-6
Soda, bicarbonate	1.15-1.50
Soda, caustic, domestic, 60 per cent.	1.80-1.91
Sal., American	65-85
Vitriol, blue	4.76-5.00
Acetate of soda	4-6
Acid, picric, best crystals	70-75
tannic, commercial	36-37
Albumen, egg	42-65
blood	21
Aniline, oil	9½
salt crystals	8½-9½
Alizarine	15-16
Bichromate of potash, American	7-8
Bichromate of soda	4-7
Bisulphite of soda	75-1.25
Cutch, bales	5-8
Dextrine, imported potato	4-7
Divi-divi, ton	33-47

MILL NEWS

West Virginia, Graham. J. M. Newton of this place is looking for a location for a new woolen mill. He has received an inquiry from a manufacturer asking for information concerning the prospects here for the establishment of a woolen mill which would furnish employment to 500 people. The secretary of the Bluefield Chamber of Commerce is aiding in the promotion of the enterprise.

Texas, Cleburne. The Cleburne Commercial Club is agitating the establishment of a coton mill in Cleburne.

Vermont, North Montpelier. The Little Woolen Company, a new company organized to rebuild the plant of the Little Mfg. Company and continue the business, is manufacturing sacking. A mill has been built and equipped with one set of cards and 24 looms. The capital stock of the company is $10,000. Harry Daniels is president; George L. Pray, treasurer, and Fred S. Little, superintendent and buyer.

Wisconsin, Milwaukee. An increase has been made in the capital stock of the Milwaukee Wadding and Comfort Company from $20,000 to $40,000. Wool wadding batts and comforts are manufactured.

The WM. H. LORIMER'S SONS CO.,

MERCERIZERS AND DYERS

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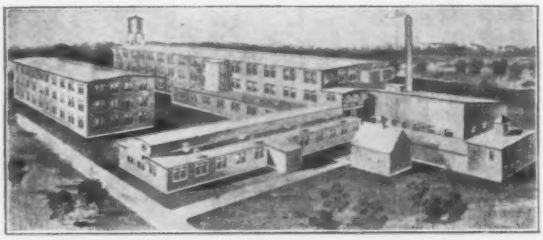

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CHAIN WARPS

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MILL NEWS

*Georgia, Columbus. A plan is being considered by the management of the Swift Spinning Mills for doubling the production of cotton yarns. 16,000 ring spinning spindles and 2,240 twisting spindles are operated at present.

*Georgia, Fitzgerald. Work is practically completed on the addition, 200 by 40 feet, being built by the Fitzgerald Cotton Mills. One hundred looms will be installed and this equipment has been purchased.

*Georgia, Manchester. Work has been completed on the 2-story brick addition to the plant of the Manchester Cotton Mill and the company is now installing 3,200 new spindles with preparatory machinery.

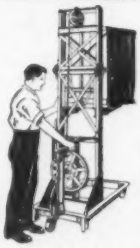
*Maryland, Elkton. Progress is being made on the project to build a 2-story brick mill, 200 by 40 feet, for W. S. Deibert of the W. S. Deibert Company, Elk Mills, and his associates. A company has been organized under the name of the Elkton Development Company, with capital stock of $15,000, all paid in, for the purpose of building the mill, and it is expected that construction contract will be awarded shortly. The W. S. Deibert Company now manufactures in its plant at Elk Mills lines of couch covers and curtains on 25 looms.

Massachusetts, Fall River. The call for the annual meeting of the Standard Fabric Company contains a proposition to increase the present capital stock of $150,000 to $200,000 by issuing $50,000 in seven per cent. cumulative preferred stock. The proceeds from issuing the additional stock will be used to pay debts incurred in adding machinery. Machinery has been added almost continuously since the plant, as originally planned, was complete. This was during 1911. Additional new machinery is being installed at the present time.

New Hampshire, Claremont. New equipment is being installed in the Monadnock Mills, including eight new spinning frames, 10 cards, 4 pickers, 8 drawing frames and roving machinery. The new auxiliary power plant, on which work has been going forward for the past six months, is now practically completed. A brick building, 51 by 55 feet, with a chimney, 150 feet high, has been constructed, and three boilers, of 260 h. p. each have been installed. There is room for two additional boilers which will be installed later if necessary. Steam is delivered to a turbine engine, direct connected with a generator which will develop 800 h. p.

Massachusetts, New Bedford. A building owned by the New England Cotton yarn Company is to be remodeled and equipped as a roll covering shop. Ricard & Davoll are the contractors in charge of alterations in the building.

South Carolina, Clio. According to unconfirmed reports, a company known as the Red Bluff Cotton Mills has taken over the Octoraro Mills and will put the plant in operation, after making improvements.



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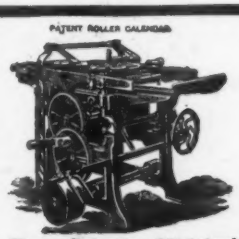

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MILL STOCKS

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	Bid.	Asked.	Last Sale.
American Linen Co.	...	70	...
Arkwright Mills	...	65	...
Barnard Mfg. Co.	...	65	...
Bourne Mills	...	110	...
Border City Mfg. Co.	99	...	99½
Chace Mills	103	...	...
Charlton Mills	82½	...	...
Cornell Mills	...	...	...
Davol Mills	85	...	...
Davis Mills	85	87½	...
Flint Mills	99	...	100
Granite Mills	...	108	...
Hargrave Mills	...	50	...
King Philip Mills	106	...	108
Laurel Lake Mills	115	120	...
Lincoln Mfg. Co.	...	87½	...
Luther Mfg. Co.	125	...	...
Merchants Mfg. Co.	...	88	...
Mechanics' Mills	...	90	...
Narragansett Mills	105	...	...
Osborn Mills	...	105	...
Parker Mills	...	50	...
Pocasset Mfg. Co.	95	100	...
R. Borden Mfg. Co.	120	...	...
Sagamore Mfg. Co.	172	...	...
Seaconnet Mills	...	63	...
Shove Mills	74	...	...
Stafford Mills	...	80	...
Stevens Mfg. Co.	...	120	120
Tecumseh Mills	101	...	...
Troy C. & W. Mfg.	...	...	...
Union Cot. Mfg. Co.	...	175	165
Wampanoag Mills	...	80	...
Weetamoe Mills	...	87	...

OTHER NEW ENGLAND MILLS

	Par Value.	Last Sale.
Amoskeag Mfg. Co., com., N. H.	100	63
Amoskeag Mfg. Co., pfd., N. H.	100	99¼
Androscoggin Mills, Me.	100	135¼
Arlington Mills, Mass.	100	80
Appleton Co., Mass.	100	172
Atlantic Cotton Mills, Mass.	100	40½
Bates Carpet Co., Me.	100	219⅛
Bigelow Carpet Co., Me.	100	150½
Boott Mills	100	98⅛
Boston Duck Co., Mass.	700	1240
Boston Mfg. Co., Mass.	100	105¼
Cabo. Mfg. Co., Me.	100	120
Chicopee Mfg. Co., Mass.	100	90
Continental Mills, Me.	100	75
Dwight Mfg. Co., Me.	100	1002½
Edwards Mfg. Co.	100	99
Essex Co., Mass.	100	185
Everett Mills, Mass.	100	110
Fisher Mfg. Co., Mass.	100	125⅛
Franklin Co., Me.	100	205
Great Falls Mfg. Co., N. H.	100	176
Hamilton Woolen Co., Mass.	100	95
Hamilton Mfg. Co., Mass.	100	81¼
Hill Mfg. Co., Me.	100	90¼
Jackson Co., N. H.	1000	985
Lancaster Mills, Mass.	100	85
Lawrence Mfg. Co., Mass.	100	150¼
Lockwood Co., Me.	100	99
Lowell Bleachery, Mass.	100	129
Lowell Hosiery, Mass.	100	40
Lyman Mills, Mass.	100	117½
Massachusetts Cotton Mills, Ga.	100	93¾
Massachusetts Cotton Mills, Mass.	100	115½
Merrimack Mfg. Co., com., Mass.	100	25
Merrimack Mfg. Co., pfd., Mass.	100	85
Middlesex Co., Mass.	100	58½
Monadnock Mills, N. H.	100	100
Nashua Mfg. Co., N. H.	500	565
Naumkeag Steam Cot. Co., Mass.	100	180
Newmarket Mfg. Co., N. H.	100	95
Otis Mfg. Co., Mass.	1000	1852½
Pacific Mills, Mass.	100	109
Pepperell Mfg. Co., N. H.	100	290
Plymouth Cordage Co., Mass.	100	225
Salmon Falls Mfg. Co., N. H.	300	150
Shaw Stocking Co., Mass.	100	75
Suncook Mills, N. H.	100	20
Thorndyke Mfg. Co., Mass.	1000	1750
Tremont & Suffolk Mills, Mass.	100	99
Waltham Bleachery & Dye Works, Mass.	100	129
York Mfg. Co., Me.	100	85

NEW BEDFORD MILLS

	Bid.	Asked.
Acushnet Mill	135	...
Beacon Mfg. Co., com.	102½	...
Beacon Mfg. Co., pfd.	...	115
Booth Mfg. Co., com.	...	21
Booth Mfg. Co., pfd.	47½	...
Bristol Mfg. Co.	...	70
Butler Mill, com.	...	90
City Mfg. Co.	87	...
Dartmouth Mfg. Co., com.	*140	145
Dartmouth Mfg. Co., pfd.	101	...
Gosnold Mfg. Co., pfd.	87	...
Grinnell Mfg. Co.	167½	...
Holmes Mfg. Co., com.	100	...
Holmes Mfg. Co., pfd.	*102	...
Kilburn	110	120
Manomet	111	...
Nashawena Mills	61	63
N. B. Cotton Mills Co., com.	...	102½
N. B. Cotton Mills Co., pfd.	...	...
Neild Mfg. Co.	90	...
Nonquitt Spinning Co.	...	92
Page Mill	...	76
Pierce Mill	300	...
Pierce Bros., Ltd.	100	...
Potomska Mills	117½	...
Quissett Mills, com.	94	...
Quissett Mills, pfd.	98	...
Sharp Mfg. Co., com.	75	...
Sharp Mfg. Co., pfd.	100	...
Soule Mill	82½	87½
Taber Mill	98	...
Wamsutta Mills	120	...
Whitman Mills	120	...

* Ex dividend.

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Abbeville	85	100
American Spinning Co.	155	...
American Spinning Co., pfd.	100	...

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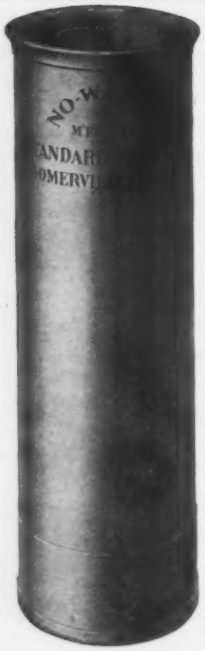

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Avondale	120	126
Brogon Cotton Mills (new series)	...	81
Brookside	110	...
Cannon	120	...
Cabarrus	120	...
Chadwick-Hoskins	...	80
Chadwick-Hoskins, pfd.	...	101
Chiquola Cotton Mills, pfd.	80	...
Clifton, com.	80	...
Clifton, pfd.	96	100
Clara	100	...
Cliffside	100	...
Clinton	...	190
Columbus Manufacturing Co.	...	83
Darlington	75	83⅛
Drayton	...	90
Erwin, pfd.	...	105
Easley	...	185
Exposition	...	210
Florence	125	128
Gaffney Manufacturing Co.	50	...
Gibson, com.	106	111
Gluck	...	100
Graniteville, S. C.	140	152
Grendle	...	96
Glenwood	...	150
Glen Laury, pfd.	...	76
Highland Park	186	...
Highland Park, pfd.	100	...
Hartsville	175	195
Hartsville, pfd.	...	100
Henrietta Mills	...	141
Inman, com.	...	108
Inman, pfd.	...	100
Keeler	150	165
Lancaster Cotton Mills	130	...
Lancaster Cotton Mills, pfd.	96	...
Lanet	...	112
Laurens	127	136
Lockhart, S. C.	...	72½
Loray Mills, pfd.	...	86
Modena	...	100
Mollohon	...	101
Monarch, S. C.	115	...
Newberry	125	...
Norris Mills	...	121
Ninety-Six	130	140
Orr	...	86
Ozark	100	113
Parker Mills, com.	...	...
Parker Mills, pfd.	34	...
Parker Mills, guar.	85	100
Pacolet Mfg. Co., com.	...	108
Pacolet Mfg. Co., pfd.	100	...
Patterson	129	...
Pelzer Manufacturing Co.	125	164
Piedmont Manufacturing Co.	150	167
Pell City, Ala.	...	80
Poe, W. F., Manufacturing Co.	100	103
Riverside Manufacturing Co.	...	78
Roanoke Mills	...	155
Saxon	114	...
Spartan	107	...
Toxaway	...	78
Union Buffalo, first pfd.	34	51
Union Buffalo, second pfd.	...	10
Warren Mfg. Co., com.	78	...
Warren Mfg. Co., pfd.	...	107

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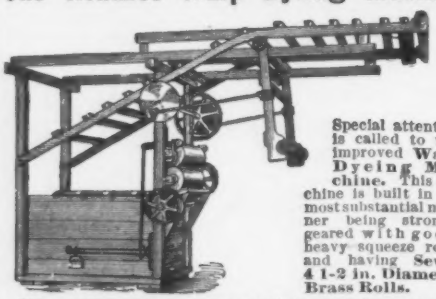

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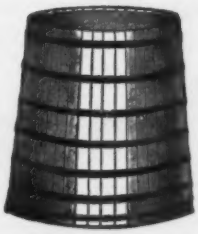

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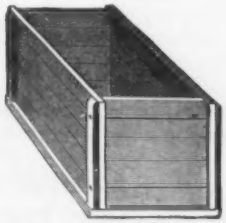

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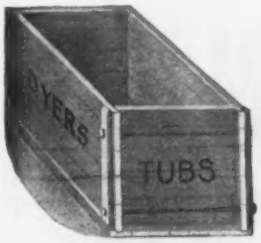

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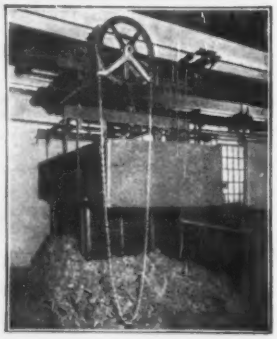

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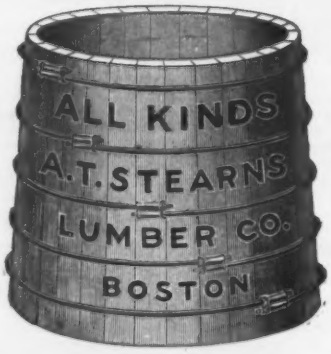

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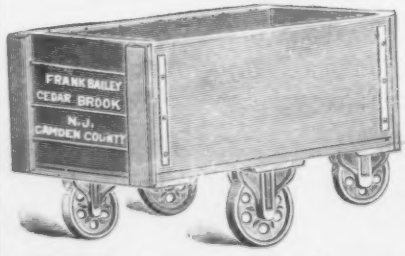

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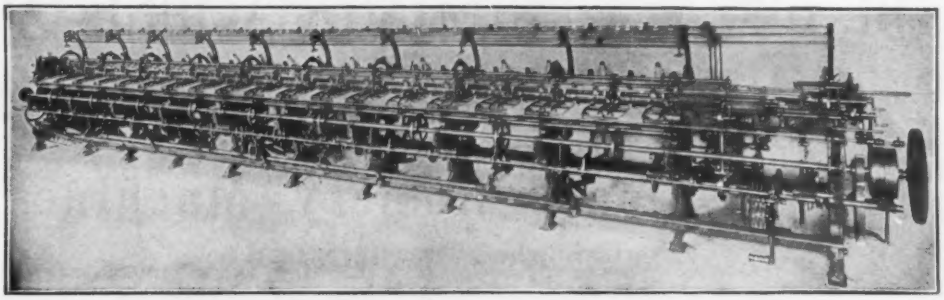

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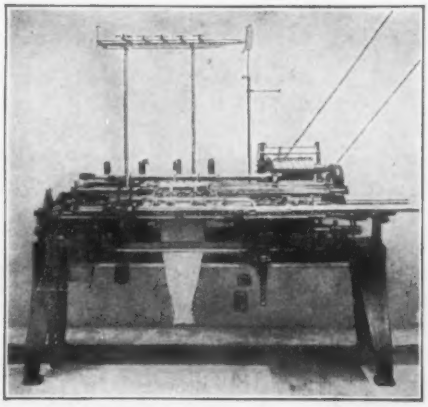

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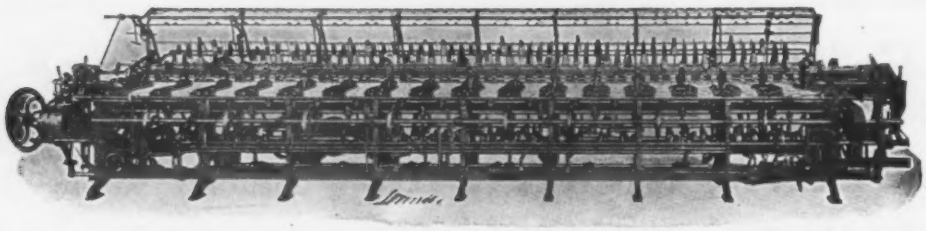

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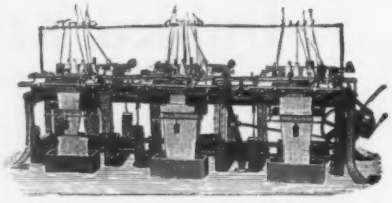

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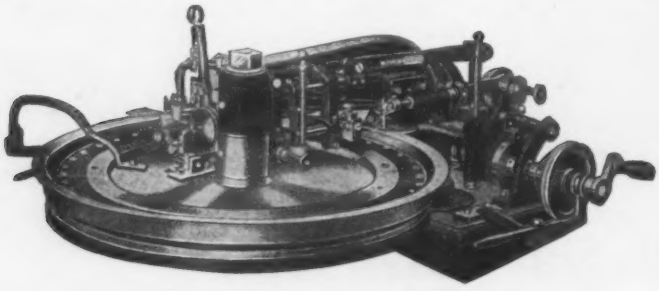

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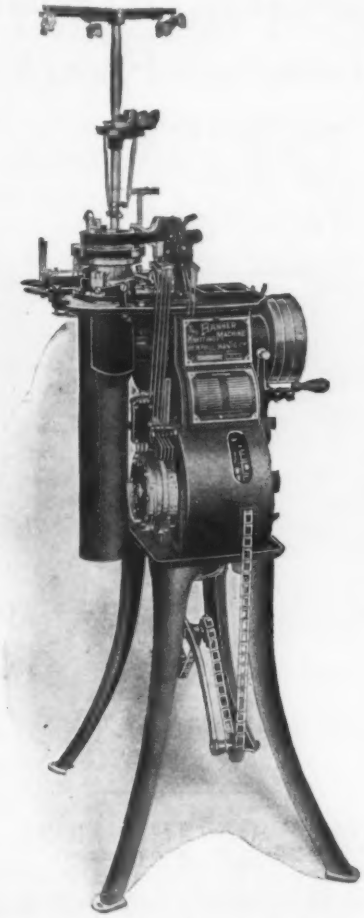

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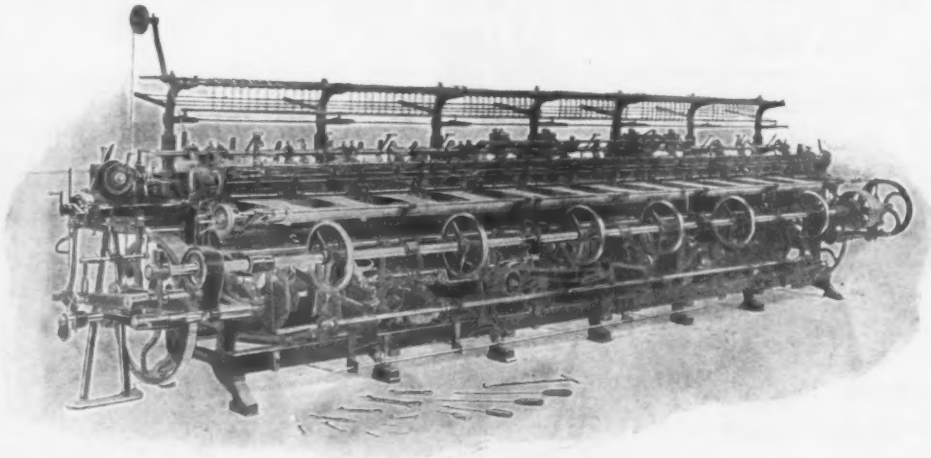
Are unique in that they are the only frames used by French manufacturers for their best goods and the goods are those you cannot equal.



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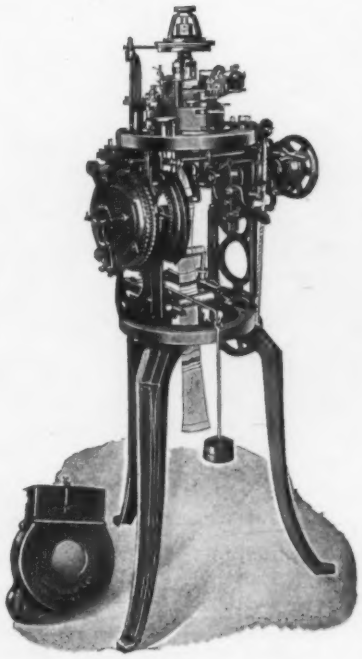

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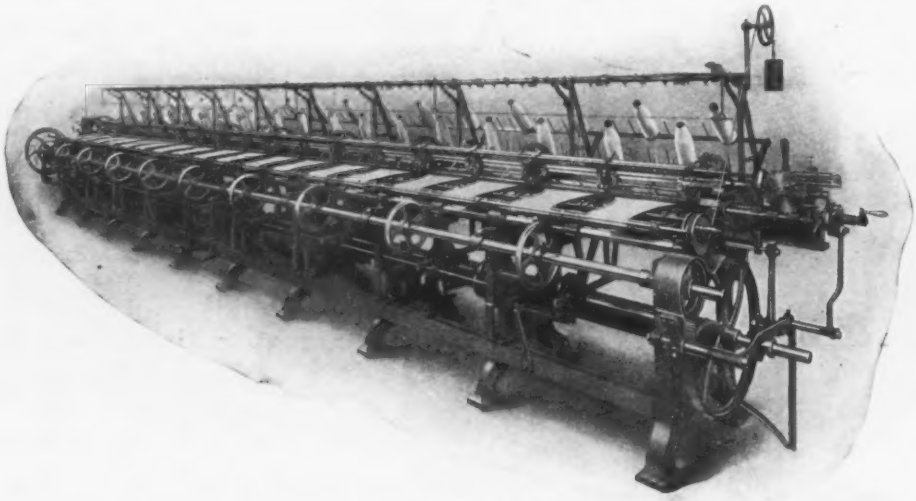

Schubert & Salzer, in addition to the plant of H. Alban Ludwig, have recently acquired the plant of Theodor Lieberknecht and continue to build Full Fashioned Hosiery Machines in each of the three plants, retaining the special features of each individual type and at the same time using on all three machines various patented devices and all the practical attachments known to the trade. These machines are built in all gauges from 14 to 34 needles to the inch and from 12 to 24 sections.

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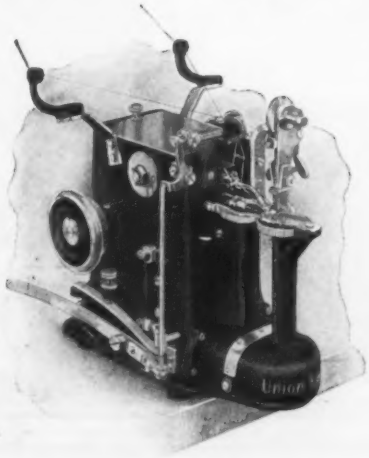

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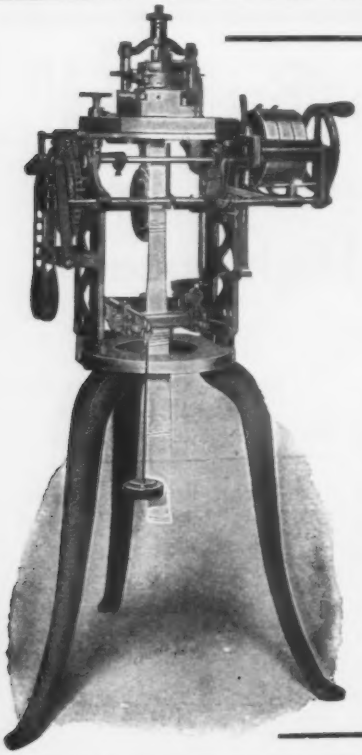

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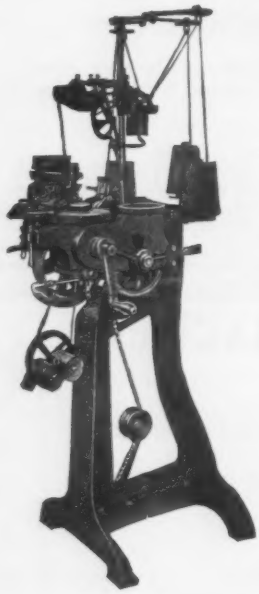

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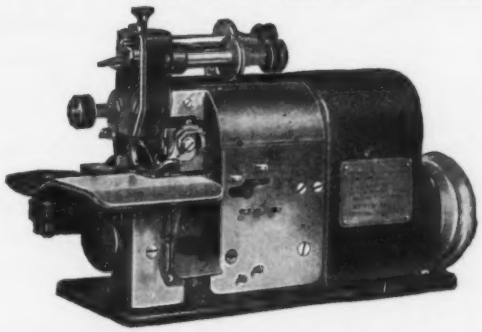

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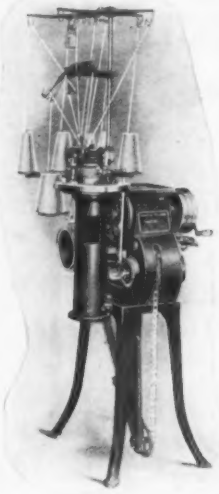

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Write for Special Catalog descriptive of this system of machines, also Underwear Machines, Hosiery Ribbers, etc.

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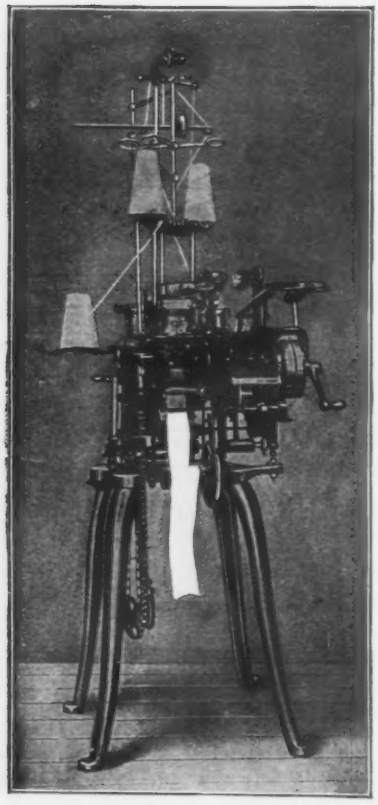

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No Ravel;
Silk, Plated, or Mercerized Leg.
High Splice, Double Sole, with Advanced Toe, Linen or Mercerized Heel and Toe.

PAXTON & O'NEILL

537-41 North Third Street, Philadelphia

HOW MUCH OF THIS

$10,000,000.00

DO YOU WANT?

About $10,000,000.00 worth of full fashioned stockings are made in America each year.

No matter what proportion of these millions you are now getting, you can get more of it if you will make full fashioned hosiery on our machines.

Because, the stockings you make will fit perfectly and bring you repeat orders.

The leading hosiery manufacturers are installing these machines.

If you are thinking of making full fashioned goods take up the question with us—as our success depends upon yours, we will prove to you that we can help you before you spend a cent.

TEXTILE MACHINE WORKS

READING, PA.

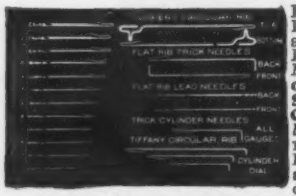
THE MAKERS OF AMERICAN FULL FASHIONED HOSIERY MACHINES

CHARLES COOPER

BENNINGTON, VERMONT

MANUFACTURER OF

Knitting Machinery



Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder, Spring Needle Cylinder Rib-Top Machines for making Cuffs, Drawer Bottoms and Shirt Borders.

Spring and Latch Knitting Needles, Burr Wheels, Burr Blades, Sinkers, Jacks, etc.

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838 Lancaster St., Albany, N. Y.

European Representative:
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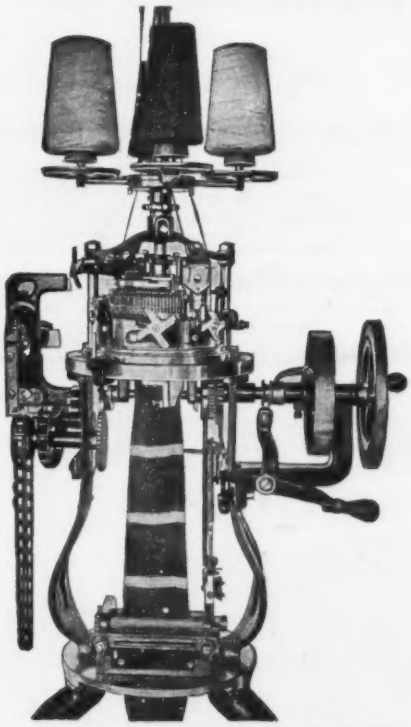
1914

CRANE MFG. CO.

Established 1870 LAKEPORT, N. H. Incorporated 1890

Spring and Latch Needle Machines

for Both Rib and Plain Work
Economically Producing
A GREAT VARIETY OF FABRICS



IMPROVED AUTOMATIC TOQUE MACHINE

Made in sizes from 5″ to 7″ inclusive, of any desired gauge; these measurements being back to back of cylinder needles.

These machines are built in a thorough and workmanlike manner and are second to none in the market.

The Crawford stop-motion is applied when requested

SOME CRANE FEATURES.

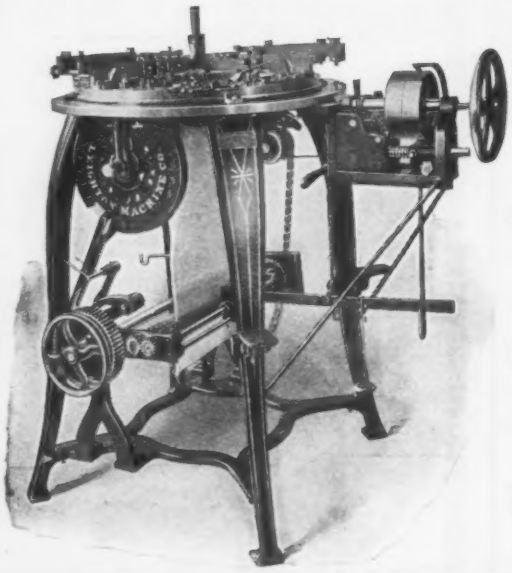
Patent removable hardened Wing Burr Wheels.
Patent Thread Stop Motion can be fitted to 20 in. and 40 in. frames and are specially adapted for making fine Jersey Cloth and Stockinet.
Our flat machine is adapted for knitting collarettes.

We regret
to announce
the death
on
February 17, 1914
of
Mr. Edward Tredick
our President

The business will be continued as heretofore under the management of Mr. John C. Brewin, formerly Secretary and Treasurer.

NYE & TREDICK CO.
718-720 Cherry Street
PHILADELPHIA, PA.

Leighton Improved Circular Knitting Machines



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Give Good Production and Excellent Quality

IN

Automatic Racked Fancy

OR

Plain Stitches

On Wool, Worsted or Cotton Plated

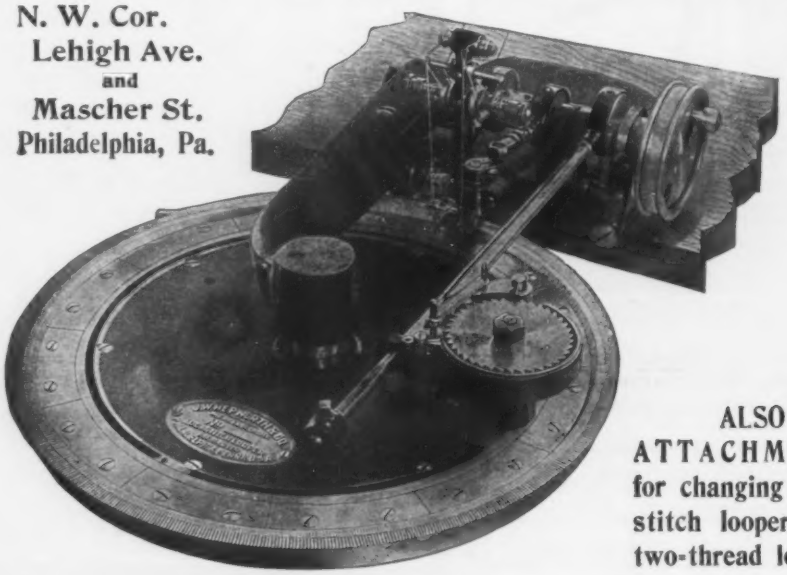
We also Build Jersey or Ribbed Underwear Machines, 4 to 16 Feeds

Leighton Machine Company

Manchester, N. H.

John W. Hepworth & Company

N. W. Cor. Lehigh Ave. and Mascher St. Philadelphia, Pa.



Makers of Two Thread Elastic Lock Stitch Loopers

ALSO ATTACHMENTS for changing our single stitch loopers into the two-thread loopers.

JAMES TAYLOR, 216 N. Front St. Philadelphia, Pa.

ALL KINDS OF NEW AND SECOND HAND **KNITTING MACHINERY**

A RARE OPPORTUNITY TO BUY

10 Lamb & Grosser Sweater Machines.
3 Large Crawford Hollow Plate Presses.
1 Allen 40 Spindle Cop Winder.
54 Standard "B" Knitters for sizes.
24 Mayo "Acme" " " "
2 Complete Hosiery Plants.
1 Boomer & Boshert Cold Press.
1 Crane Style Collarette Machine 20", 16 to in.
1 Rotary Fire Pump. 3 Small Pumps.
2 Toque Machines.
4 Hosiery Dryers.
14 Cornely Hosiery Embroidery Machines.
500 Dozen Hosiery Shaping Boards.
1 Caligraph Typewriter.
1 Complete Plant for Mfg. Hosiery
1 ½ h. p. Electric Motor.
1 Singer Nat. Button-hole Machine.
500 Payne Winder Bobbins.
100 ¾ Aut. Knitters, various makes and sizes.
1 Payne 40 Spindle Skein Winder.
1 Abel 36 Spindle Cop Winder.
1 Union Special Overedge, Style 15.400.
4 Climax High Speed Motions for Ribbers.
1 Underwear Mangle.
Lot Electric Stop Motions for flat Machines.
1 Merrow No. 60.
1 Crawford 17 Plate Press.
1 Blickensderfer Typewriter
5 Band Folding and Cutting Machines.
1 Curtis & Marble Napper, 66".
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42 Union Spec. Sewing Machines, various styles
50 Loopers and Seamers, all makes.
60 Ribbed Underwear Machines.
100 Hosiery Ribbers and Sleevers.

WRITE FOR COMPLETE LIST. APPRAISEMENTS A SPECIALTY

We are always in the market to buy good Second-Hand Knitting and Finishing Machinery.

The New Boss Seamless Knitter

Do you want the biggest production with the least menders, for the least money? If so, write to the Boss Knitting Machine Works for their circular with full directions. There is no cylinder to be handled. We use only one cylinder and transfer device for half hose or ladies' hose. This machine beats them all. Has no equal for simplicity and durability. Makes 300 revolutions per minute. Built in sizes from 2¼ to 5½; from 40 to 224 needles. Automatic in heel and toe. It is the strongest built knitter on earth.

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Why Do You Put Buttons on Garments?

"So the garment can be buttoned when on," you would probably reply.

Then why sew buttons on in such a way that it is almost impossible to button the garment neatly, especially when starched? Why have the buttons so tight that they will not stand the wear and tear of the laundry? Why sew them without any allowance for thread shrinkage?

Why do these things when with the

Elastic Stitch Button Sewing Machine

you can sew buttons neatly and uniformly with only one thread, (instead of two), with an allowance for thread shrinkage, and with a raised, hand-sewed effect?

No Threads To Trim Saves 90% of the Needle Breakage — **No Bobbins to Wind** — **Will Sew All Buttons With Any Thread**

You can save money and increase the demand for your product by sewing your buttons on with the "Elastic Stitch" Button Sewing Machine.

Send for our "List of Users" booklet

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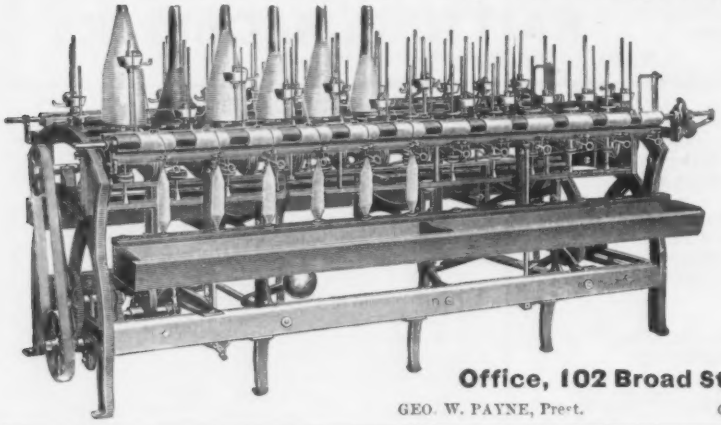
394 Atlantic Ave., - - Boston, Mass.
245 Seventh Ave., . - New York City

Agents Everywhere

OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers, Wind for Cop, Skein or Bobbin



Improved

Upright Spoolers

To Spool from Cop, Skein or Bobbin

Doubling Spoolers for doubling 2, 3 or more ends into one

Upright Quillers, Quill from Cop, Skein or Bobbin.

Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler Guides, Bolsters and Stops Made and Repaired at Short Notice.

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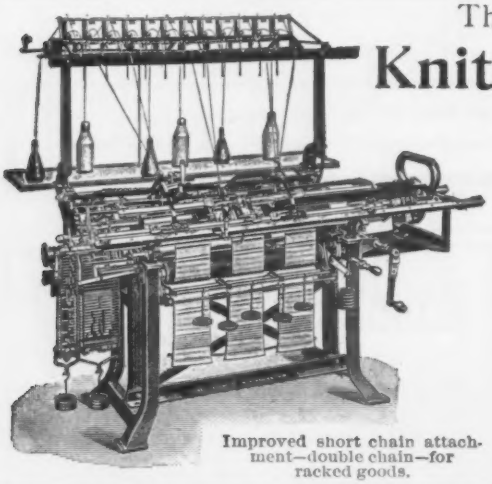

Improved short chain attachment—double chain—for racked goods.

That is the Brand of the

Knitting Machines

worldwide known to be **The Best**

160,000 Knitting Machines in use all over the Universe

CLAES & FLENTJE

Muhlhausen Thr., Germany

(Largest Knitting Machine Factory in the World)

The cut represents one of our full automatic machines with double chain, short chain attachment, doing away with the long chain and lots of blocks.

Machines for all kinds of plain and fancy knit goods by hand and full automatic by power.

Our knitting machines are far superior to any other in simplicity and construction. They give a higher production than any other on the market.

For full particulars, needles and supplies for all kinds of knitting machines, write to

Ainslie Knitting Machine Co.

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We Are the Oldest Manufacturers

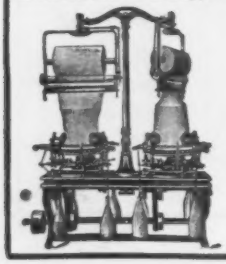
IN THE WESTERN HEMISPHERE

Of Circular Spring Needle Loop-Wheel Knitting Machinery.

TOMPKINS BROS. CO., Troy, N.Y.

We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:

Cross Question 123. How long have you been a manufacturer of knitting machines? Answer I started in this business about the middle of May, 1900.



Tompkins Knitter

This design was adopted in 1875.

BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLEY Was born, according to his testimony in the case above cited.

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"Simplex" Tables

COMPRISING

Comparative Yarn Tables, showing the equivalent sizes of different systems of Numbering Yarn and Different Standards.

Weight of Yarn per Yard of Cloth Tables.

Knitting Machine Gauges, Yarn Sizes for Knitting Machines. Sizes for Underwear and Hosiery.

Breaking Strength Table of American Cotton Warp Yarns.

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Price 50 Cents

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STANDARD MACHINES FOR HOSIERY MAKING

The STANDARD F,
with attachments, can make any and all of these fabrics:

- Plain Goods
- Plaited Work
- Three Color Stripes
- Tipped Heel and Toe
- White Foot
- Changed Heel and Toe
- Garter Top
- Loopers Slack Course

Most Stockings — Best Fabrics Longest Life

Standard Machine Company
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330-348 North 12th Street
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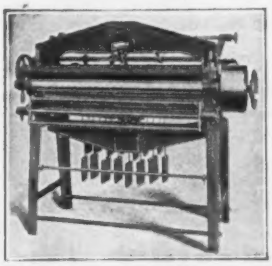
"ACME"
Hosiery and Textile Binder
No. 30

A Simple, Inexpensive Machine for Attaching Tickets on Hosiery, Underwear, etc.
It uses a pointed staple, **CANNOT INJURE THE FINEST SILK HOSE;** can be set aside when not in use.
Is operated by foot power and has a **patented WORK-HOLDING DEVICE carrying one dozen or more pairs of hose, keeping them in perfect alignment and presenting the tops in position to receive the tickets AT LEAST TWENTY-FIVE PER CENT QUICKER** than by any other method now in use.
For particulars and the address of the nearest agency
Apply to the Manufacturers

The Acme Staple Company
Camden, N. J.



The "1912" Cloth Cutting Folding and Winding Machine.

This machine will cut down operating expenses. It does in one operation the work which is now being done in two. It cuts the cloth, folds the edges and rolls them up in one operation, and at all times gets one more strip out of a bolt of cloth than is possible with the old method of cutting. At the same time it measures the bolt of cloth to show the manufacturer whether or not he is getting the number of yards he is paying for. With the high price of cotton to-day every knit goods manufacturer ought to look into this to see if he is getting the maximum efficiency at the least expense. You will find when you come to figure it up in the course of a year that the labor it saves is a big item.
Also have other labor-saving devices, and upon application you can get prices and full information on same.

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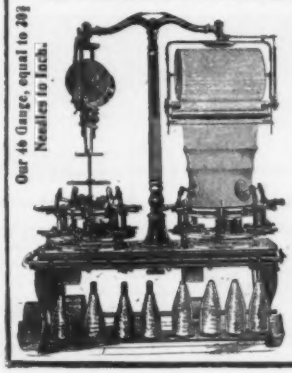
WITH
45 YEARS PRACTICAL EXPERIENCE



in building Spring Needle Knitting Machines. Have succeeded knitting the finest and the coarsest work ever made on Spring Needle Knitting Machines in this country, any work from 3 to 46 gauge. Our Machine is of the highest class.

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Most widely used; being operated in every civilized country.

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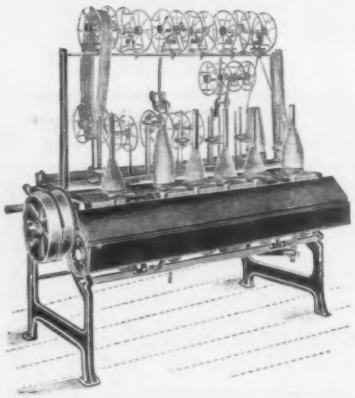

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The best winder on the market. If you are not using one or more try one.

New Bedford Textile School

This school is located in New Bedford, Mass., a rapidly growing city and already the largest producer of fine cotton goods in this country.

Instruction given in the theory and art of cotton manufacture in all its branches.

The school has one hundred ten machines for instruction purposes in carding, spinning and weaving departments; seventy in knitting department, the most complete department of the kind in equipment and scope of instruction in this country; twenty-seven machines in machine shop; thoroughly equipped departments in chemistry and dyeing, in designing, and mechanics.

Every instructor a man of broad experience and training.

Fourteenth year. Many graduates filling positions of trust and responsibility. Catalogue sent free on application. Address,

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BOARDS FOR FAST BLACK DYERS.

HOSIERY FINISHING BOARDS.

BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.

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SEAMLESS HOSIERY

Knitting Machines

built by

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Franklin, N. H.

Answer all purposes in the *most reliable*, *up-to-date*, and *economical* manner. Write us for full particulars.

Manufacturers like our Latch Needles

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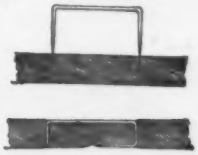
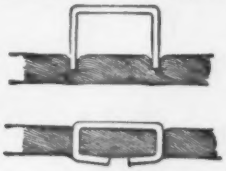
Look At The Difference!

THE BREHMER STAPLE OF FINELY POINTED WIRE



The fine points escape the threads and do not break them. The staple ends lie perfectly flat and smooth and do not stick up to catch on other goods. The stitch is readily picked out with the fingers.

THE STITCH OF OTHER MACHINES USING THE HEAVY WIRE



The coarse heavy wire and the blunt staples break the threads and leave unsightly holes after they are removed and require a knife to extract the stitch.

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Highest Grade

Machine for rapid and Economical Method of Attaching Labels to Hosiery or other Garments.

Uses pointed staples, cannot tear the finest fabric.

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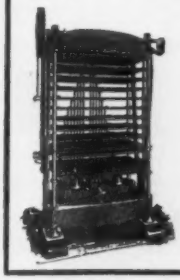

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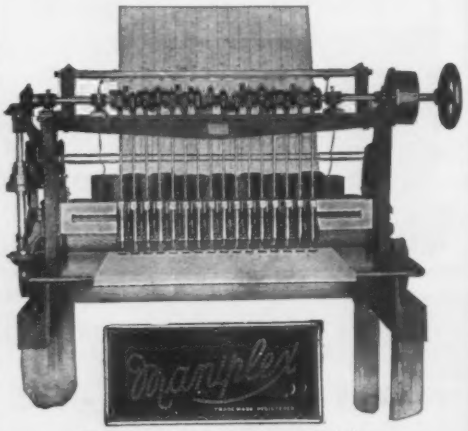
WORKS, EBINGEN, GERMANY

"Maniplex" Sewing Machines



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Built for all purposes where a number of rows of stitching are required. ¶With either form of stitch, single thread chain, double thread chain, or lock-stitch, sewing material from 1-16 inch thick, up to 1 inch thick, and up to 120 inch wide. ¶Furnished with any required number of needles, spacing to suit requirements. ¶We also build **Paper Slitting Machines** and design special machinery.

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Needles for all makes of Knitters and Ribbers
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Special Needles made to order.

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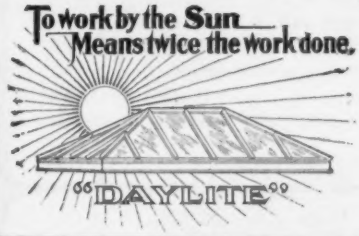

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Applicable wherever daylight is desired

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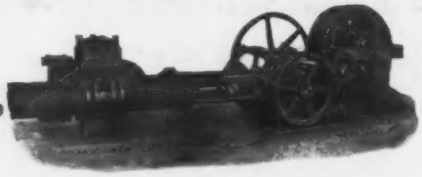

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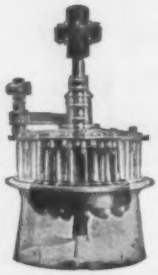
AND WHY IT IS BEST IN

POWER, SPEED AND ECONOMY



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These are points of merit established by scientific and experimental tests.

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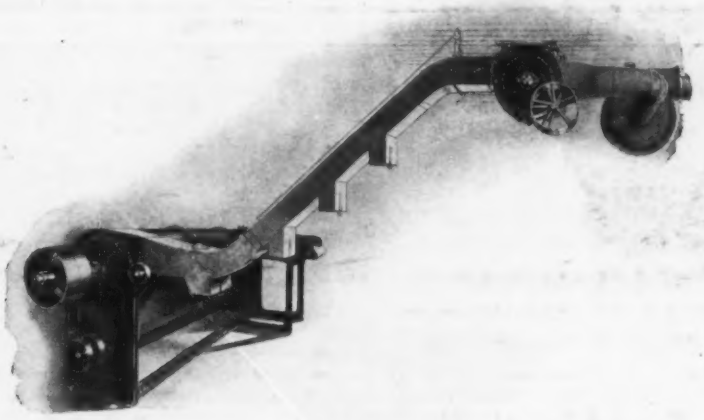

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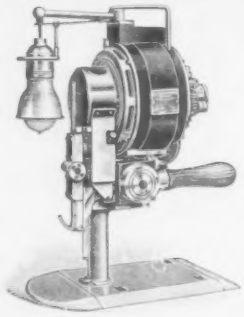

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